DG)

# Work without wires: A host of products are making work from anywhere business as usual. Special coverage starts on PAGE 25.

# NetworkWorld

The leader in network knowledge ■ www.nwfusion.com

November 18, 2002 Volume 19, Number 46



We've got singing cell phones and other great gift ideas for the holidays.

....

NEWSPAPER \$5.00

# Biz users prep for IM onslaught

**BY JOHN FONTANA** 

As consumer instant-messaging tools take root in corporate America, network executives are scrambling to deploy gateways to control their usage while also exploring more long-term strategies.

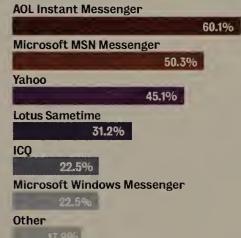
Vendors have responded to the need this past month as Yahoo, AOL and last week Microsoft's MSN all introduced gateways for corporate networks that address the shortcomings of consumer instant-messaging services by providing customer-based security, logging, auditing and user management controls.

The immediate message is that

### Who's using what

In a September survey, Osterman Research asked 196 IT managers which instantmessaging products were in use at their companies, either officially or unofficially.

(More than one response allowed)



network executives can no longer merely block grass-roots adoption of free instant-messaging clients or let them run wild on their networks. And for the long term it signals that corporations need infrastructures to support

See Instant messaging, page 16

### **NEWS** ANALYSIS

# What is broadband?

Let's define it before we debate the need for national policy.

■ BY DENISE PAPPALARDO AND JENNIFER MEARS

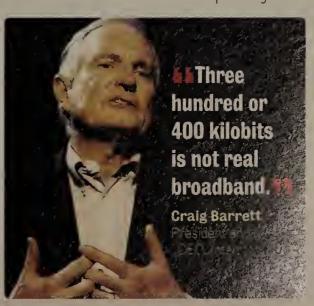
The debate about the need for a national broadband policy has been pushed to the back burner by national security issues, but before it comes back to a boil the industry needs to agree on what broadband is

There are those who say the roughly 1M bit/sec DSL and cable TV modem links are broadband, while others, such as Intel President and CEO Craig Barrett, scoff at that, saying broadband is up around 100M bit/sec.

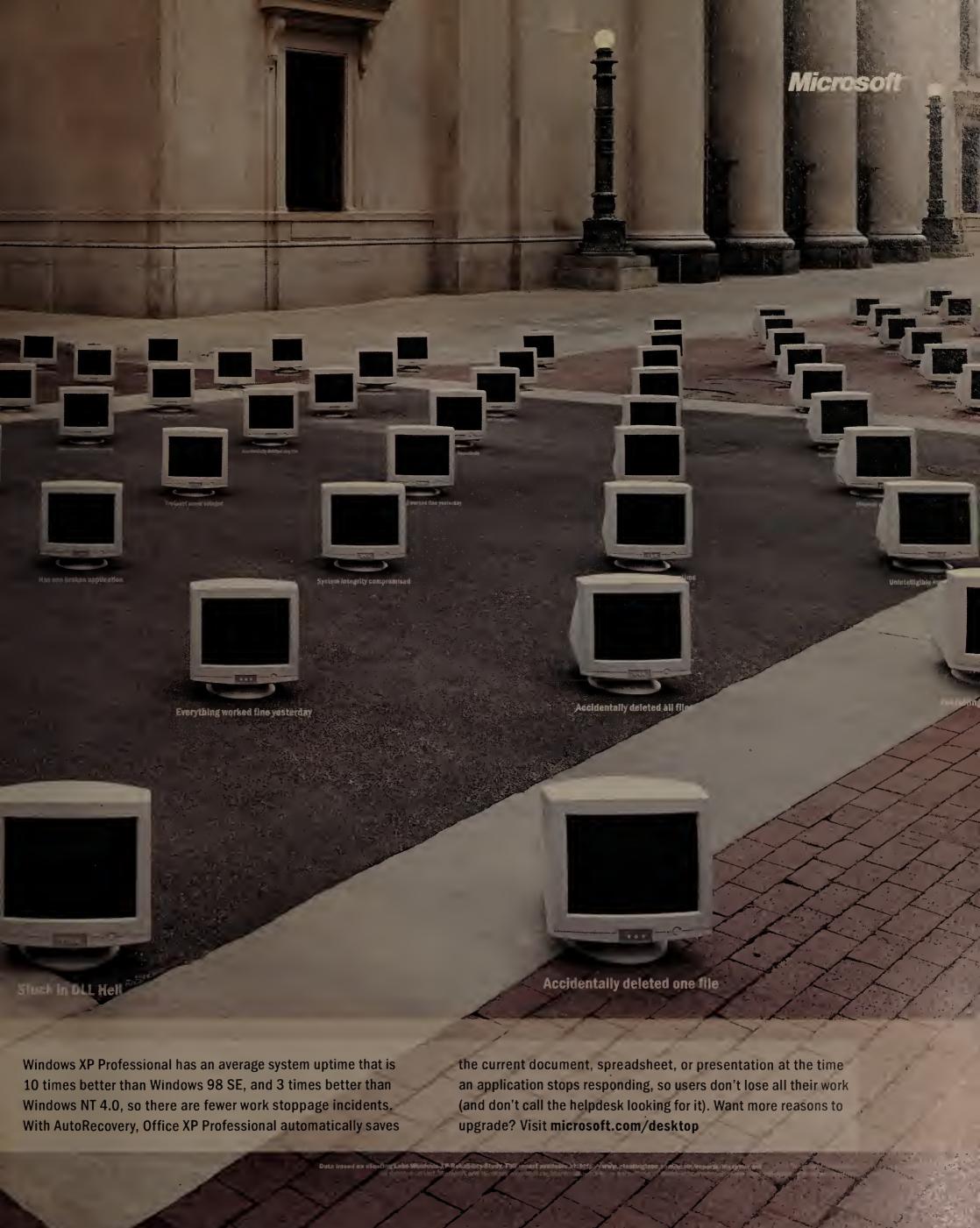
Reality probably falls somewhere in between.

The Federal Communications Commission says broadband services are those that support bidirectional data transmissions of at least 200K bit/sec.

See Broadband, page 87









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We know you've been busy shaping the company network this year, so we've done all the heavy lifting when it comes to thinking up great gift ideas for yourself or the tech-toy lover on your gift list. **Page 59.** 

# **NetworkWorldFusion**

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### Interactive

### More gifts for you

After perusing our annual Cool Yule Tools holiday gift guide, head over to Fusion to discover dozens of additional recommendations for the best gifts and gadgets to add to your list. **DocFinder: 3122** 

### The Comdex news you need

Our crackerjack reporters are in Las Vegas this week to cover all the happenings at the show. We'll have it all for you, updated throughout the day, every day this week, on our Comdex breaking news page.

DocFinder: 3140

### Forum: Best technologies

Which network hardware and software can't you live without? Our columnists, testers and readers give their picks in our annual Best Issue (DocFinder: 3058). Join our forum on the topic. **DocFinder: 3141** 

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### **Columnists**

### Compendium

Pricing too good to be true
Fusion Executive Editor Adam Gaffin says that spam you're
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vendor. Get tips from Symantec on how to spot an imposter.

DocFinder: 3142

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IDS on the cheap

Columnist Ron Nutter helps a user who needs to build a low-cost intrusion-detection system.

DocFinder: 3143

### SOHO Tech

What cost fast wireless?

Net.Worker columnist James Gaskin puts 802.11a SOHO products through their paces in his home. **DocFinder: 3144** 

### **View from The Edge**

Chinese chill

The Edge Managing Editor Jim Duffy says the once red-hot China telecom market cools off for equipment vendors.

DocFinder: 3145

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### **TheGoodTheBadTheUgly**

### Where your Microsoft dollars are going.

Maybe this will make you feel a tad better about putting up with Microsoft's latest software licensing schemes. Bill Gates pledged \$100 million last week to fight AIDS in India through a grant from the Bill & Melinda Gates Foundation.

**Feeling vulnerable.** New vulnerabilities have been discovered in the Berkeley Internet Name Domain DNS software that could allow hackers to carry out denial-of-service attacks against servers using BIND, according to an advisory that security company Internet Security Systems issued last week. The vulnerabilities affect earlier versions of BIND, such as Versions 4 and 8, although not Version 9, which the Internet Software Consortium recommends DNS administrators adopt.

**Survival of the fittest.** Figuring out which vendors to place your bets on could get harder than ever in coming years if Michael Fleisher, chairman and CEO of Gartner, is correct. "Fifty percent of all tech brands will disappear over the next two years," he said last week at a conference in Australia, suggesting that the IT industry needs to face up to the reality that slower growth means fewer companies will survive.

### Esrey being treated for cancer . . .

■ Sprint CEO William Esrey has been diagnosed with a treatable form of cancer, the company said last week. He will remain active in his current role during his recovery, according to the company. Esrey was diagnosed with lymphoma, a cancer of the lymphatic system. Esrey, 62, has been CEO of the long-distance and mobile phone carrier since 1985 and became chairman in 1990. Doctors at Duke University Medical Center, where Esrey's condition was diagnosed, have informed him that the lymphoma is considered highly treatable and they anticipate a full recovery.

### ... as Sprint announces 1,600 layoffs

■ Sprint will lay off about 1,600 full-time employees and release about 500 contractors over the next few months as part of a reorganization to reduce operating costs. The cuts will be in its PCS mobile phone service division and will represent about 6% of the division's total workforce, Sprint said. Only a few employees work directly with customers, according to Sprint. They work in support areas such as marketing, IT, network and finance. Fierce competition has driven down prices in the crowded U.S. mobile telecom market, while the global carrier business reels after making big investments in the late 1990s. Cutbacks at many carriers have caused concern that quality of service will be affected.

### Sun snaps up Terraspring

Sun last week acquired data center software start-up Terraspring to improve its N1 computing strategy. The company, which did not disclose the value of the deal other than to say it was a cash-for-stock transaction, will use Terraspring's logical server farm software to increase the virtualization capabilities of Sun's server and storage products. To raspring, founded in 1999 by Sun veterans, makes software that automates the deployment, management, visibility and control of heterogeneous data center environments its lts software works with Solaris, Linux and Windows NT operating systems. N1 is suntiative to combine separate server, network and storage devices into one supply of resources so companies can transact business more efficiently.

### Grand juries indict alleged hacker

■ After a 17-month investigation, federal grand juries in Virginia and New Jersey last week indicted 36-year-old British computer administrator Gary McKinnon for allegedly hacking into 105 U.S. military networks over 12 months beginning in March 2001. McKinnon was apprehended in London by Britain's National High Tech Crime Unit, which has cooperated with the Army's Criminal Investigation Command's Computer Crimes Investigative Unit and other U.S. agencies. McKinnon is accused of deleting files and causing loss of Internet access to thousands in the Defense Department, Army, Air Force and NASA.

### Inktomi sheds enterprise search business

■ The tough economy continues to take a toll on software maker lnktomi, which has sold its enterprise search business to Verity to focus exclusively on Web search. The companies announced last week that Verity agreed to pay \$25 million for the business, which includes basic search, categorization and content refinement capabilities, as well as XML technology. Verity will take over certain lnktomi obligations, including support for about 2,500 lnktomi enterprise search customers. The news comes just months after lnktomi announced it was winding down its caching business. In July, the company said it was reducing its content networking group and laying off 270 employees, or about 42% of its workforce, to focus on its core search business.

### Standard sought for 10G Ethernet over copper

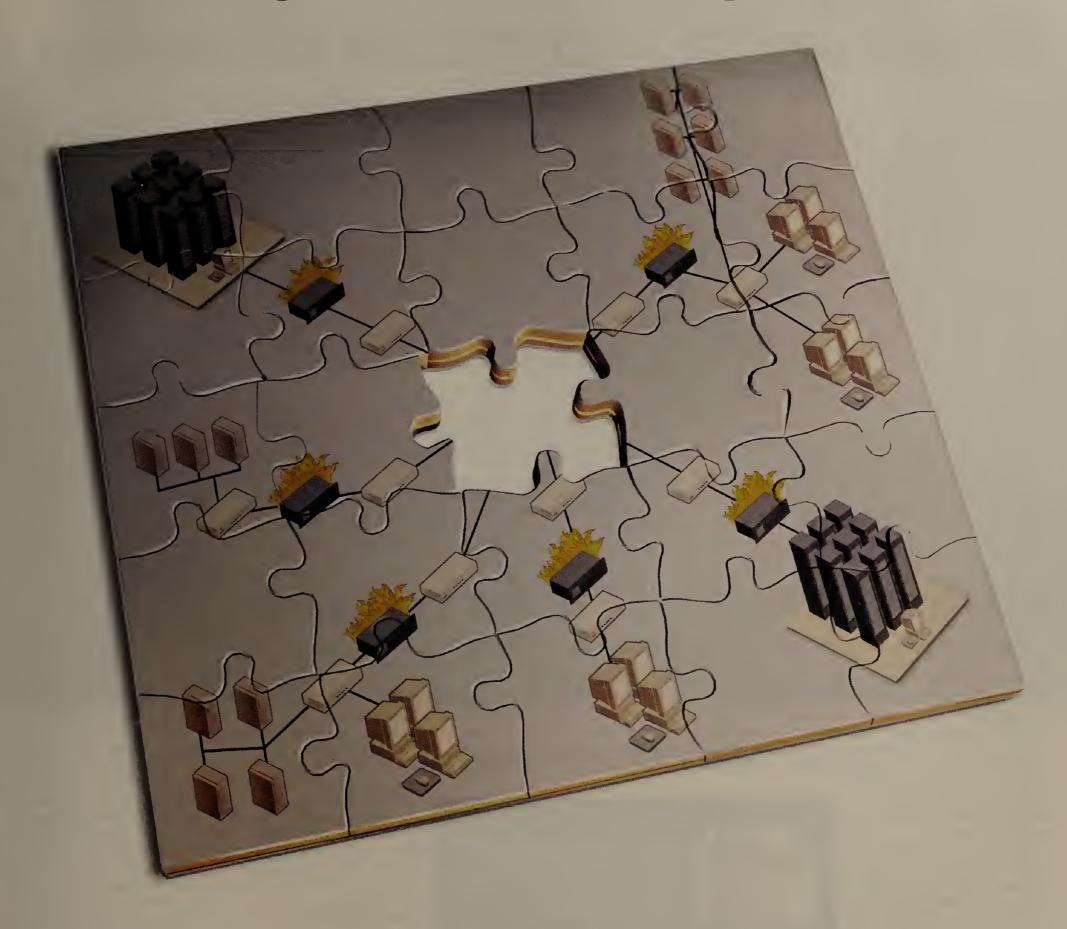
■ The IEEE is exploring whether to set a standard for running 10G bit/sec Ethernet over Category 5 wiring, which would be in addition to the existing standard for 10G Ethernet over fiber. So far, proposed implementations of the technology on copper vary widely, and that will have to be sorted out in a work group that could start meeting as early as January. Last week, the IEEE put out a call for interest that will result in a group that will start dealing with technical issues. Companies working on 10G Ethernet over copper include Accelerant, Cicada, Mysticom, Plato Labs and SolarFlare. All the proposed schemes would use all four wire pairs in a Category 5 cable and would support distances up to 328 feet.

COMPENDIUM

### Why Bluetooth bites

Software pioneer Bob Frankston thinks it's more trouble than it's worth: "The pair-wise security model of Bluetooth simply doesn't work in any but the most trivial scenarios." Read more at www.nwfusion.com, DocFinder: 3139.

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# HP pushes for automation technology

BY DENISE DUBIE

Hewlett-Packard this week will detail a product strategy that promises intelligent hardware and automated software that can ensure applications meet service levels, and free IT staff from constantly monitoring and reacting to network performance problems.

HP plans to unveil its Adaptive Management Platform road map at its HP Software Universe show in Lisbon, Portugal. The company says the platform will let customers build networks that can dynamically respond to changing conditions and ensure that business applications get the network, server and storage resources they need on demand. The company also will introduce new and upgraded products in its OpenView management software portfolio that it says will support the automation platform.

The road map comes about

one year after the company introduced its OpenView Utility Data Center (UDC) software, which allocates resources across data centers on demand. The Adaptive Management Platform is an extension of UDC, HP executives say, and the company plans to include more automation features in the next 18 months (see graphic).

UDC can create a virtual view of all the resources within one or more data centers and share those resources across domains to meet application needs. It also can allocate resources to specific workloads, and let users configure and reassign data center resources with drag-and-drop menus. The software includes service management tools that track resource usage and ensure the network meets service-level agreements.

HP's strategy news follows IBM chief Sam Palmisano's endorse-

### On the drawing board

HP will add these features to its Utility Data Center software during the next 18 months:

**Automatic provisioning:** Allocate resources based on predefined rules or infrastructure performance patterns without human intervention.

**Business-level SLAs:** Translate and apply infrastructure availability to the performance of business-critical applications.

Integration of business processes and operations: Identify and implement processes across a company that optimize business and IT operations performance.

ment last month of Big Blue's 18-month-old eLiza autonomic computing. Industry watchers say the companies' plans heighten competition between the two rivals. HP also will compete against Sun and its N1 products. The first N1 products will include software that helps group servers and stor-

age hardware for centralized management, followed next year by tools for provisioning application resources, Sun says.

The general strategies are a positive sign for corporate customers, says Dennis Drogseth, an analyst with Enterprise Management Associates. When hardware heavyweights such as HP, IBM and Sun start moving in the same direction and announcing similar products, it could indicate that automation technology has arrived.

"They are all talking about managing the infrastructure in such a way that it better supports business applications. Initial customer investments will be around cost savings and being able to do more with less," Drogseth says. "But the evolution of these tools will result in IT being a more controlled environment, not just geewhiz technology without much practical use."

In HP's case, Drogseth says the company must achieve three goals for its Adaptive Management Platform to succeed. UDC and other OpenView tools must automate tasks and dynamically allocate resources in networks equipped with HP hardware and software. HP tools must work in non-HP hardware networks that depend on OpenView software for management. And finally, UDC should dynamically and automatically manage non-HP hardware and software resources without extensive human intervention.

"They all have to prove they work in heterogeneous environments because that's the reality of what's out there," Drogseth says.

John Bandy, IS technical services manager for Foremost Farms in Baraboo, Wis., uses OpenView tools to manage the infrastructure and applications at the dairy cooperative. He says the new products from HP will help him get more out of his network.

"Our goal is to be able to continually improve our service levels without having to continue to make additional investments in infrastructure," Bandy says. He says HP's upcoming products could help his staff respond more effectively to service degradation by improving event correlation, root-cause analysis and resource utilization within the network.

In addition to the road map, HP executives announced upgraded products enhanced to support its Adaptive Management Platform. Network Node Manager 6.4 and Network Node Manager Extended Topology 2.0 now include intelligent diagnostics that the company says will help customers predict problems before they degrade service.

HP OpenView: www.openview. hp.com

# Capellas called a good fit for WorldCom

**BY DENISE PAPPALARDO** 

Financially embattled WorldCom might be taking a gamble choosing a CEO with no telecom experience, but experts say a fresh outlook could be just what the company needs.

The optimists see that gamble paying off with the emergence of a more customer-

focused company that plans to be a role model for business integrity, instead of a poster child for corporate misconduct.

The carrier on Friday named Michael Capellas as its chairman and CEO, nine weeks after announcing intentions to search for a new boss. Capellas was most recently president at Hewlett-Packard and CEO of Compaq before that company's merger with HP. He resigned from HP last week.

Capellas says he feels an "enormous sense of responsibility" to bring back trust and integrity to WorldCom. "I have thought about that a lot...and it will affect my actions. It will be a great thing to get this company back on track," he says

WorldCom has been under a Securities and Exchange Commission investigation for nearly four months over billions of dollars worth of allegedly fraudulent bookkeeping.

While Capellas has 26 years of experience in the IT industry none have been in telecom.

"At least he isn't tainted by scandal, but on the other hand, selling PCs and servers is a far cry from 1-1s and IP VPNs," says Steven Harris, an analyst with IDC. "It's not only a different kind of product and revenue stream, but a new kind of technology to learn — packets and frames instead of ones and zeros."

"Clients I've spoken with are concerned about the lack of telecom service provider experience," says Lisa Pierce, an analyst at Giga Information Group.

66 There is no intention of breaking up the company and selling parts. 75

Michael Capellas

Newly appointed WorldCom CEO

However, customers are more concerned with how WorldCom will emerge from bank-ruptcy, Pierce adds.

"There is no question that WorldCom will shed some assets and business customers recognize this," she says. "They worry more about the prospect of WorldCom possibly selling the data and IP business to an incumbent local exchange carrier ... or that it will exit a major geographic region such as Western Europe. Any of these scenarios are viewed as highly disruptive."

Capellas is trying to squelch those fears.

"There is no intention of breaking up the company and selling parts," he says, "I would

not have taken the job if we were not coming out of bankruptcy. My goal is to come out of bankruptcy intact and move forward."

According to those who know him, Capellas couldn't be more different than Bernie Ebbers, who headed up WorldCom until April. Ebbers often was criticized for his indifference toward customer-care issues and a disdain

toward the media. Capellas, on the other hand, says he will emphasize "the importance [of World-Com's] existing customers" and told the press he would offer "direct answers to direct questions."

His first plans include face time with customers.

"We'll establish a customer advisory board of about 10 to 12 of the top accounts," he says. "This will be our vehicle to communicate with them."

Capellas also plans to take to

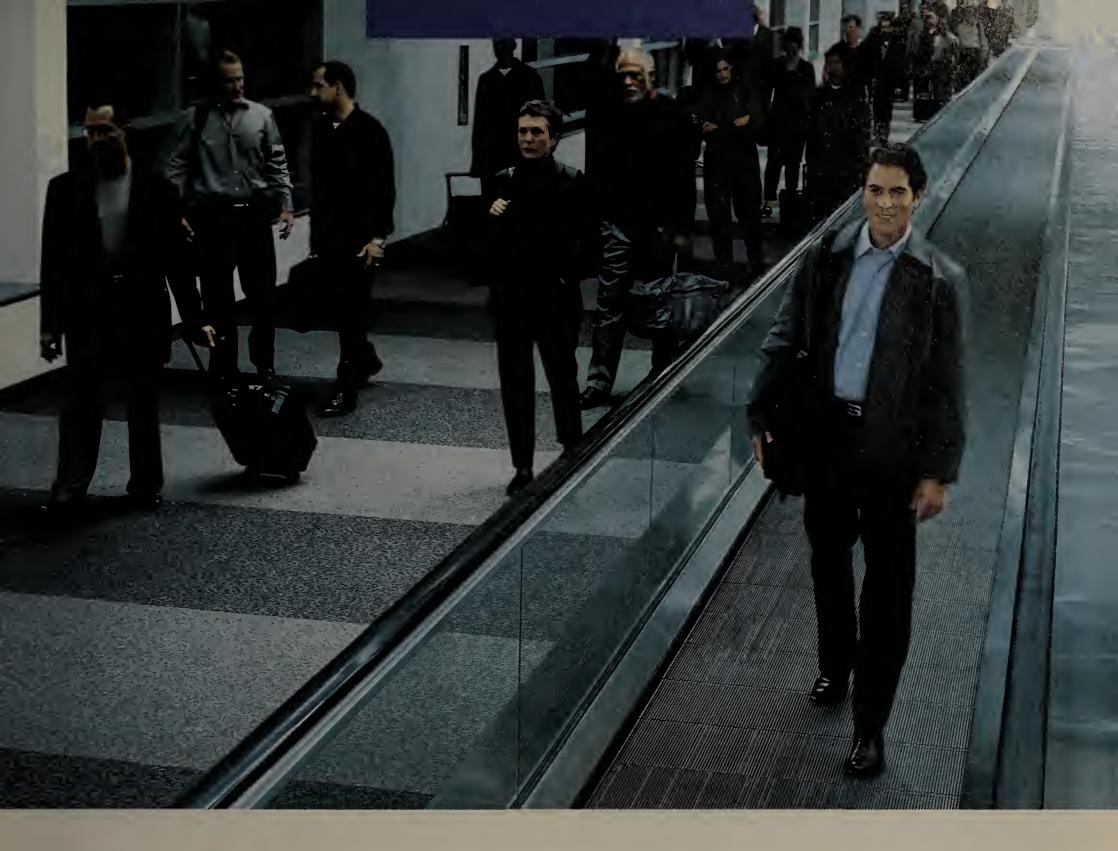
the road.

"I'll be visiting [customers] one by one," he says. "There's something about the personal touch . . . there will be a lot of attention to detail."

Capellas has a reputation for following through on the latter promise.

"Michael is a detail man," says Jamie Gruener, senior analyst at The Yankee Group. "He did a heck of a job improving the operations at Compaq and getting the work done on the merger with HP."

Senior Editor Deni Connor contributed to this story.



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# Storage vendors expand mgmt. options

Hewlett-Packard introduces automated storage provisioning; IBM, Dell upgrade NAS products.

### **BY DENI CONNOR**

Hewlett-Packard, Dell and IBM rolled out various software and hardware products last week designed to make it easier for network professionals to manage, expand and back up storage devices.

HP announced three offerings in its OpenView management suite — a new product called OpenView Storage Provisioner, and enhancements to OpenView Continuous Access Appliance (CASA) and OpenView Media Operations.

OpenView Storage Provisioner lets network managers automate many repetitive manual storage tasks by creating rules based on service levels and the requirements of business applications. Products that compete with Storage Provisioner include EMC's Automated Resource Management and SANPoint Control from Veritas Software.

The automation of storage management is increasing, primarily

because managers are realizing that IT resources can be better deployed if automated routines lighten staff workloads. The storage automation market will total only \$50 million this year, The Yankee Group says, but should reach \$500 million by 2005.

OpenView CASA lets data be replicated or migrated between storage devices from different vendors. New in this upgrade is support for NetWare 5 and 6, clustering support with MC/Service Guard for HP-UX and asynchronous write ordering, which timestamps data to confirm it has been received and puts it in the right order on the receiving storage system.

OpenView Storage Media Operations, which automates and enforces the rules applied to backing up data to media, now lets information about the type of media being used be passed to other vendors' back-up and recovery software via XML. Storage Provisioner, which shipped earlier this month, starts at \$20,000; CASA

HP's new software allows the assignment, reallocation or deallocation of software in an automated rule—based fashion.

The network manager is setting up a script. He selects the drives that will be affected by the change.

The net manager can see how those drives are being used, whether they have been backed up and their total size.

\*\*Sorrage Union Front-Sorrage\*\*

\*\*Water Production\*\*

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starts at \$122,500; Storage Media Operations starts at \$8,400.

Separately, Dell introduced a low-end network-attached storage (NAS) device, the Power-Vault 725N, for small businesses and work groups within large companies.

Carl Moser, president of finan-

cial brokerage firm Excel Mortgage in Iowa City, bought one and used it to replace several Windows 2000 file servers.

them with a set of other drives

"We had a certain amount of downtime with the server that we don't have with the NAS appliance, and the server was harder to set up and manage," Moser says. "We put the NAS device in a month ago — since that time it has never failed."

Moser has seven employees that

use the PowerVault 725N for e-mail, file and print sharing, mortgage processing and financial applications.

The PowerVault 725N is a single-processor box that ranges from 160G to 480G bytes of storage capacity. It starts at \$1,800.

The company also doubled the storage capacity of its PowerVault 770N and 775N NAS appliances to 17 terabytes when SCSI is used or 40 terabytes when they are attached to a Fibre Channel SAN as a gateway device.

IBM added 2.4GHz Intel Xeon processors to its TotalStorage NAS 200 and NAS Gateway 300 appliances, which double the processing power over previous models.

The company also added Alactritech adapters to connect the NAS devices to the IP network—the adapters offload the TCP/IP processing from the system processor, freeing it to run applications. It integrated 147G-byte drives into both appliances, letting the NAS 200 address more than 7 terabytes of data; the NAS Gateway 300 now scales to more than 22 terabytes. IBM's Total-Storage FAStT storage array's capacity also has been doubled to 32 terabytes.

The NAS 200 Model and Gateway 300 Model are expected to be available this month; the 200 starts at \$17,300; the 300 starts at \$63,100.■

# E-mail security gateways coming

New, upgraded offerings take aim at viruses, spam.

### **BY ELLEN MESSMER**

A handful of vendors this week are scheduled to announce gateways designed to frisk incoming e-mail for viruses, inappropriate content or spam.

The new and revised devices, which offer an alternative to plunking security features onto busy e-mail servers, include:

• BorderWare's MXtreme Mail Firewall, which has new ways to filter unwanted spam via source addresses, while adding a way to stop potential exploits of cookies used in Microsoft Outlook Express, the

Web browser access to corporate e-mail, when the Outlook e-mail client isn't used.

- CipherTrust's IronMail, which now has a console for administering five or more gateways designed to liandle spam, security alerts, antivirus protection and content filtering.
- Finjan Software's SurfinGate 7.0 for Email, which now will include McAfee antivirus scanning along with Finjan's technology for content scanning, antispam, and a new feature, watermarking. Watermarking, which creates a digital representation of documents flowing through SurfinGate, lets people check

### **Applying themselves**

A sampling of new and revised e-mail security appliances are being rolled out this week

Product	What's new	Price
BorderWare's	Advanced antispam	\$6,000 and up
MXtreme Mail	feature	
Firewall		
CipherTrust's	Central management	\$20,000 per box
IronMail	console	
Finjan Software's	Use of watermarks to	\$30 per seat
SurfinGate 7.0 for	track files and McAfee	
Email	antivirus scanning	

information in the header of a document to determine whether tampering has occurred.

The companies say their gateways are an improvement over adding security directly to mail servers, which are already busy handling ever-growing volumes of mail. These vendors are competing with one another and with larger security companies such as Symantec and Network Associates, which offer gateway appliances as well as antivirus and content-filtering software for mail servers.

McAfee Security, a division of Network Associates, sells an appliance called WebShield for antivirus and content protection for e-mail, but also has GroupShield, software that can run on the mail server. This week McAfee is scheduled to announce a version of GroupShield for Lotus/Notes Domino, that will cost about \$31 for 251 to 500 users, but less for larger installations and second-year licenses. McAfee already sells GroupShield for Microsoft Exchange.

The University of St. Louis is among the organizations for which an e-mail security appliance made sense. The school maintains an older VMS-based

mail application called PMDF from Process Software, and had a difficult time finding content-filtering or antivirus software to run on the system, says Austin Winkelman, director of client and system IT.

The school now uses two CipherTrust gateways to weed out what has become a torrent of spam directed at campus staff and students. "I'd estimate that one-third to one-half of all messages now are spam," he says. Without the gateways filtering spam, the university probably would need to add more network bandwidth.



THIS WEEK'S QUESTION:

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# Big Blue says it's thinking smaller

IBM crystallizes its partner-driven strategy to infiltrate midsize companies.

### **BY ANN BEDNARZ**

SOMERS, N.Y.— IBM is working hard to build up its image as a midsize-friendly vendor.

Executives from IBM's software division devoted a day last week to championing two groups: the independent software vendors (ISV) and partners that embed, install and resell IBM software products; and midsize companies, which IBM hopes will make up more of its customer base.

Companies with between 100 and 1,000 employees represent a potential bright spot in the anemic technology-buying market. IBM estimates that 400,000 midsize businesses will spend \$15 billion next year on middleware which Big Blue deems to include application servers, portals, databases, integration tools and management software.

They'll also spend billions of dollars on enterprise applications such as CRM, enterprise resource planning (ERP) and supply-chain management. IBM doesn't make these applications, but its partners do. And its partners need middleware to get their apps rolling.

IBM announced a slew of products and support programs to help its partners resell, install, integrate and finance IBM middleware — to midsize companies, in particular. Among the new offerings is a line of middleware products, called Express, with prices and features aimed at midsize

"Unlike some of our competition, we don't compete with our partners," said Donn Atkins, vice president of worldwide sales and marketing for IBM Software Group, at last week's event. Atkins was the first executive (but not the only one) to emphasize the difference in strategies of IBM and Microsoft — which has lately stepped up efforts to sell the ERP and CRM software it gained by acquiring Navision and Great Plains Software.

For its part, IBM exited the applications business a few years ago, opting to focus on developing middleware and partner with other vendors and resellers for all other applications.

"We were spending a tremendous amount of money, and it wasn't very clear, given the other

1 1 3 2 0

### Lighter load

Geared for companies with between 100 and 1,000 employees, IBM's Express line features smaller price tags and easier administration than its full-scale offerings.

Product	Description	Pricing
WebSphere Application Server — Express	Bundles a Web application server with development tools and templates for projects such as building an electronic catalog.	Starts at \$25 per user.
WebSphere Portal — Express	Requires only one server and can be installed in five clicks, according to IBM.	Starts at \$77 per user.
WebSphere Business Connection — Express	Links a midsize company's systems with those of its business partners so the companies can perform tasks such as collaborative design and supply chain automation.	Starts at \$5,000 per server for 10 connec- tions.
DB2—Express	Due out in early 2003, will include remote database-administrator technology so companies can reduce their on-site support requirements, IBM says.	Starts at \$1,000 per server.

major application vendors in the marketplace that we were going to be successful trying to do it all — trying to develop the industry application solutions, the middleware, the components and the

hardware platforms," said Mark Ouellette, IBM's vice president of worldwide small and medium business software sales.

Since IBM's exit from the application business, partners have become a primary source of revenue for Big Blue, generating about 30% of IBM's annual revenue. Within IBM's \$13 billion software division, about 20% of revenue come from small and midsize markets, Ouellette said.

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For example, 30% of new Tivoli business is through value-added resellers, said Michael Twomey, vice president of business development and channels for IBM's Tivoli Software division. Sixty percent of Tivoli storage management sales come through partners, Twomey said.

On the data management side, 47% of revenue is driven by partners that resell or bundle DB2 products or have a measurable influence in their purchase, said Gary Schneider, director of channels and services for IBM's data management division. That figure is up from just 2% in 1996.

To keep its prolific partners happy, IBM is investing about \$1 billion in partnering and alliance strategies, executives said. Its efforts include training, support programs, advertising campaigns and new product development such as the Express lineup.■

## Wireless to be the focus at this week's Comdex

**BY JOHN COX** 

LAS VEGAS — Comdex this week will offer network executives an intriguing view of the not-too-distant wireless future.

That future includes a new high-speed wireless LAN standard that could eventually supplant 802.11b; a new generation of affordable handheld devices with built-in

wireless LAN or cellular interfaces; and new public-access wireless LAN products that are a step F A toward keeping mobile

workers linked to headquarters.

New end-user devices will take much of the limelight. Hewlett-Packard is expected to release two iPaq pocket PCs, including a low-end model for about \$300. A highend model, for about \$600, will incorporate 802.11b and Bluetooth wireless interfaces. These interfaces will let the device connect to a corporate wireless LAN while working with nearby devices, such as laptops and printers, that also have the short-range Bluetooth radio interface.

Dell is expected to shake up the handheld market by unveiling a line of Pocket PC handhelds, one for as low as \$200. Details are sketchy, but a Dell document circulated recently on the Web said the handhelds will have Digital and Compact Flash expansion slots, and run one of two fast versions of Intel's Xscale chip.

Microsoft, besides boosting the new tablet PCs built by its hardware partners, will show off with Samsung what's billed as an "ultralow-cost" Pocket PC concept

0 2

design. The joint effort is an attempt to lower development costs for device manufacturers. The project was unveiled last

week and describes a device barely 4 by 3 inches, and weighing just 2.9 ounces in the gray-scale version. It's fitted with a Samsung Arm9-based application processor with flash memory, a multimedia card and support for Secure Digital and Secure Digital I/O expansion cards.

The first 802.11g access points and interface eards will be demonstrated at the show, with a data rate of 54M bit/sec on the same 2.4-GHz band used by 11M bit/sec 802.11b networks. Texas Instruments will announce a chipset that can support 802.11b, 802.11a and 802.11g wireless LANs. Broadcom and Intersil are unveiling chipsets that promise "universal" wireless LAN client cards and access points.

These products would let client devices automatically select whichever wireless connection was available, without requiring manual reconfiguration.

Linksys is one wireless LAN vendor that will unveil 802.11g product plans, demonstrating an access point and adapter cards that can support the higher data rates.

New architectural approaches also will be on display, including the peer-to-peer wireless LAN technology being introduced by MeshNetworks (see related story, page 21). Symbol Technologies will showcase its recently announced Mobius wireless LAN, which offers stripped-down access points that connect with a controller packed with enhanced security software and an array of switching features.

For the wireless LAN public-access market, Proxim will unveil the AP-2500, which will support 802.11a and 802.11b connections, and "dynamic address translation" to simplify the connecting process for end users. For improved security, the AP-2500 will work with Remote Authenitication Dial-In User Service and Secure Sockets

The Wi-Fi Alliance, an industry group promoting wireless LAN interoperability, will unveil a framework that will let users log on to various public-access nets in a consistent way, be authenticated, and have the appropriate subscriber data forwarded to their "home" wireless service provider.

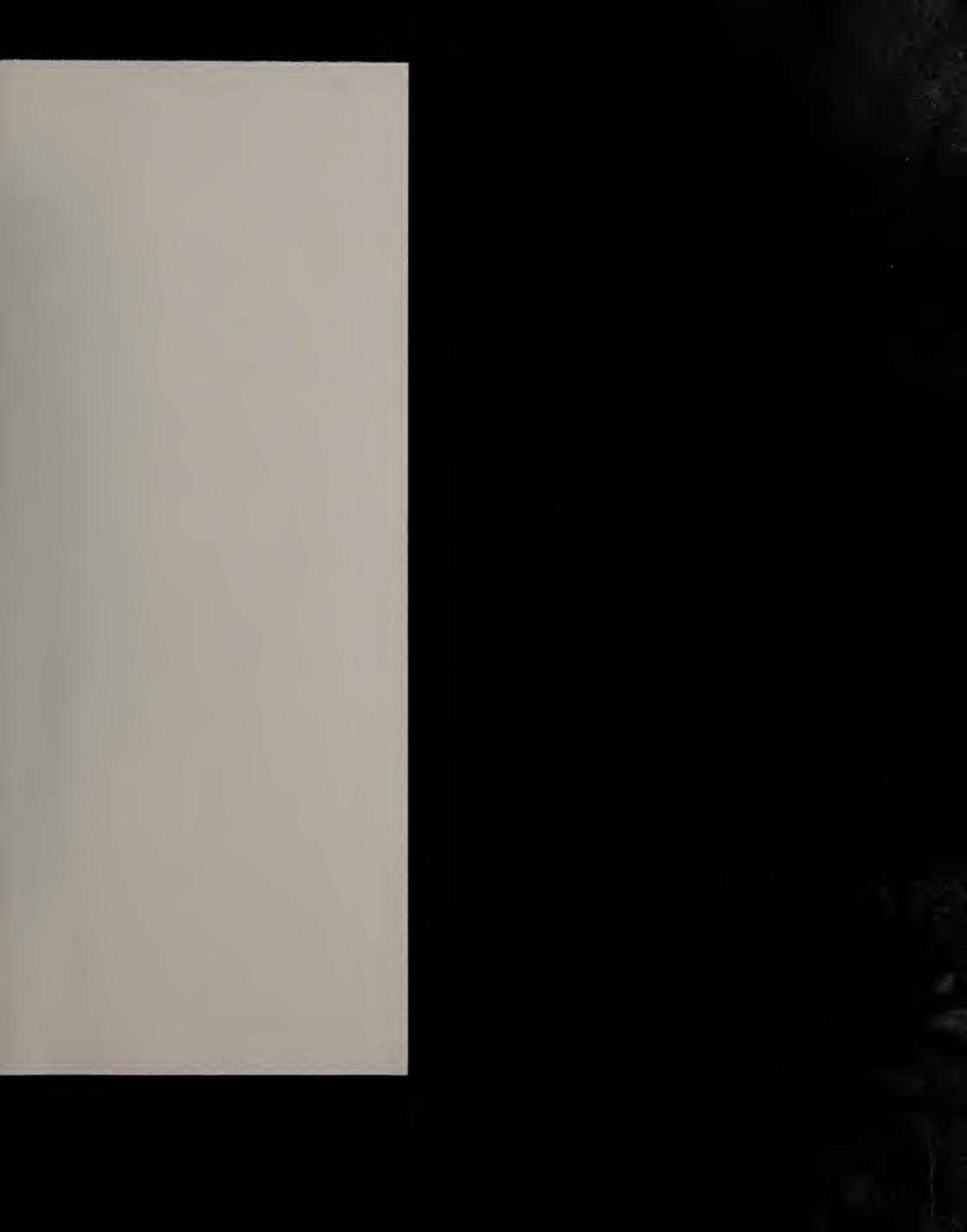
The alliance also will promote its newly announced, and widely backed, Wi-Fi Protected Access software, based on work by Microsoft. The technology will incorporate a number of features contained in the IEEE 8092.11i specification, which is designed to correct a number of security weaknesses in the wireless LAN standard. IEEE ratification won't be complete until 2003, and the alliance initiative will let vendors and enterprise users deploy improved security in the meantime.



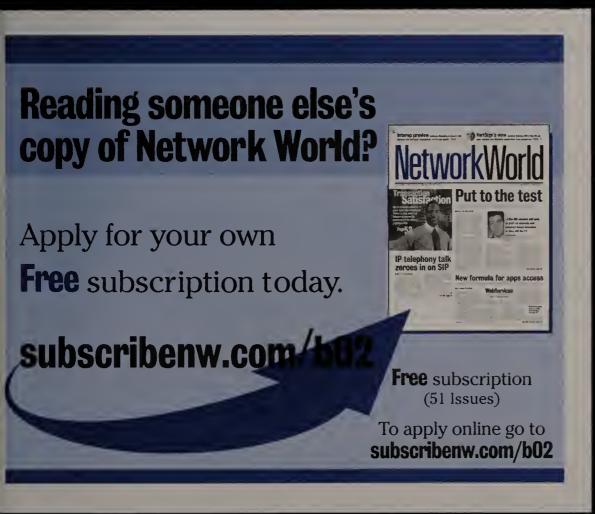
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# Cable & Wireless de-emphasizes its U.S. business

**BY DENISE PAPPALARDO AND JENNIFER MEARS** 

LONDON — As a result of the major restructuring that Cable & Wireless announced last week, many of the carrier's U.S.-only customers soon will hear that their business is no longer wanted.

The company, which racked up \$7.18 billion in losses and saw revenue plummet 30% during the first half of the year, will look to return to profitability by narrowing its focus to multinational customers.

C&W is drastically reducing its presence in the U.S. and Europe in terms of cities served and data centers. The company also is axing 3,500 employees, mostly in the U.S. However, C&W says it is retaining enough of a presence to serve multinationals.

The announcement comes after C&W's decision two months ago to sell part of its data service customer list to New Edge

### **Changes afoot**

Cable & Wireless is planning a restructuring that will reduce its focus on domestic customers.

Number of	Today	Future
U.S. cities	41	11
European cities	33	11
U.S. data centers	27	15
European data centers	5	2
U.S. employees	3,900	1,500

Networks. New Edge agreed to pay up to \$4 million, depending on how many of the 1,500 customers move over to it.

C&W declined to say how many more customers the restructuring could affect.

Software maker Network Intelligence is not waiting to find out.

"We have heard about [C&W's] restructuring plans and are in the middle of finding another provider," says Sean Armstrong, senior Internet manager at the Walpole, Mass., company, which uses C&W collocation services. "If they are only servicing inultinational customers, I would have to think that it would have a major effect on the Waltham [Mass.] data centers, which are already over half-empty."

Graham Wallace, the carrier's CEO, says C&W's "marketing and pricing were not as good as they should have been." Those are reasons why C&W experienced a high amount of churn and lower-than-expected revenue with its Web hosting business.

C&W made a number of acquisitions to boost its Web hosting business, most notably its \$750 million purchase of bankrupt Exodus (see DocFinder: 3150).

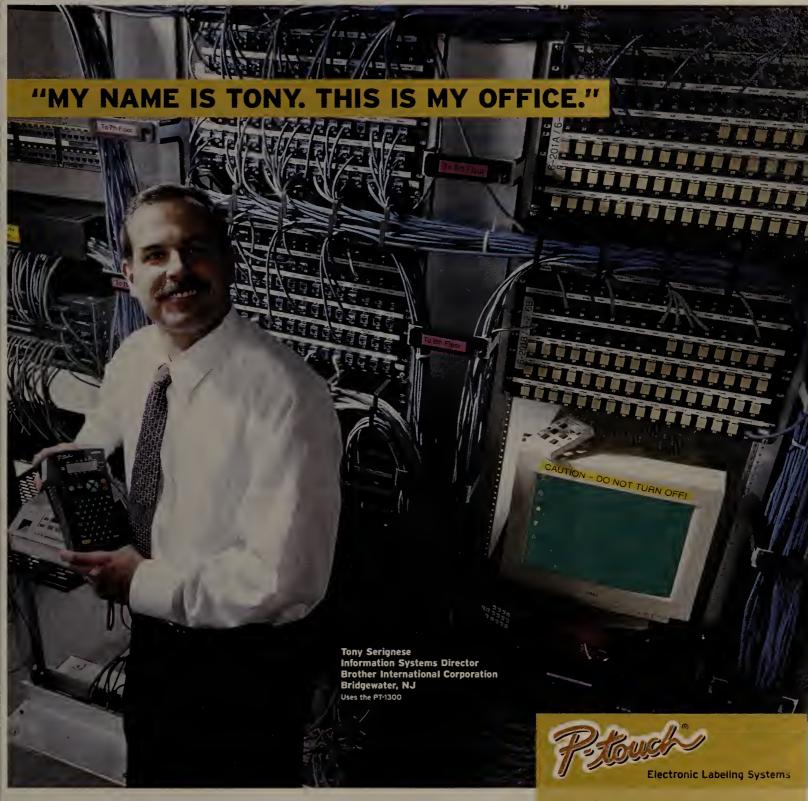
"[This restructuring marks] the death of the Exodus brand. It's ... Cable & Wireless saying they think they can only make money in this business if they do it for the high-end type of clients," says Andy Schroepfer, president of Tier 1 Research.

"Who gets screwed here are the average

clients with a couple of servers or a couple of racks ... in some of the markets that aren't as big as New York or California," he says.

Observers say C&W will be challenged to

bounce back despite its drastic moves. It says restructuring costs will add up to \$1.3 billion, taking a good chunk out of the company's \$3.5 billion in cash. ■



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# Novell to unveil remote-office appliance

Nterprise Branch Office eases connection of distant workers to data center over Internet.

### BY DENI CONNOR

Novell this week is expected to unveil a product that addresses the challenge of installing, configuring and managing networks in remote branch offices where IT professionals are scarce, and dedicated communication links are difficult and expensive to maintain.

Nterprise Branch Office software installs on standard servers in branch offices, where it coordinates the management, communication and protection of files over the Internet with the data center in corporate headquarters.

The offering joins two other products recently introduced from start-ups Web Office and DiskSites that also use Internet connections to replace more expensive communications links and coordinate file transfers.

Web Office's Virtual Private Storage Network (VPSN) is an operating system/hardware/software combination that lets IT administrators set up, configure and manage remote network gear. It also can be installed as a stand-alone network for small businesses. Storage vendor Disk-Sites' Wide Area Network Attached Storage software is aimed at distributed environ-

### How remote-office packages stack up

Each company's product addresses easing IT management of remote resources somewhat differently.

	Novell Nterprise Branch Office	Web Office's VPSN	DiskSites' W-NAS
Operates on	NetWare 5.1 and 6; cross- platform expected in 2003	Windows NT/2000	Any network using CIFS or NFS
Directory/user management	eDirectory	Proprietary	Microsoft Access Control Lists, LDAP
VPN included	No	Yes	No
File synchronization	Open source rsync	Open source rsync	Proprietary
Appliance in corporate office	No	Yes	Yes
Remote management	ZENworks, eDirectory, configuration imaging	Web console, proprietary software	Web console, proprietary software
Remote file store	Yes	Yes	No
File protocol support	NetWare Core Protocol, FTP, HTTP, CIFS, NFS, AppleTalk	CIFS, SMB, HTTP	CIFS, HFS, HTTP
Cost	\$2,500, excluding server	\$4,500, including servers	\$2,500, excluding server

ments that need to consolidate storage from difficult-to-manage remote-office file servers to move it to the corporate data center, where the data can be protected.

Analysts say the move toward centralizing remote administration over IP is a logical one, spurred by reduced IT spending, and a desire to consolidate resources and redirect IT talent to more important tasks.

"The value of this technology is

obvious," says Dan Tanner, research director at Aberdeen Group. "These packages not only coordinate the files in remote offices that might be on lower-speed lines, but centralize administration for locations that don't have l'T-trained personnel."

### Novell's offering

Novell's Nterprise Branch Office appliance connects PCs, printers and other devices to the corporate network in new branch offices to the central network. It also replaces file servers or NAS devices in remote locations that have previously been unmanaged. It uses the disk storage of the commodity server to store files and information about users and network devices. This data is then synchronized with the file server in the corporate location as changes occur, thus protecting it and providing automated back-up capability.

Branch Office requires personnel to physically wire the Ethernet network and install communications technology at the remote site. Web Office's VPSN, by contrast, includes connections for workstations, an integrated VPN and an attachment for a printer.

Branch Office works only with NetWare 5.1 and 6 networks, but will be able to work in Windows NT/2000 or Linux networks in the latter half of next year, according to Jeff Hawkins, vice president of product development at Novell.

It is managed from Novell's eDirectory and from a Webbased console utility. Included is software that lets network managers configure several servers at once and distribute them to remote locations.

Novell's product uses an open source utility called rsync to syn-

# **66** The value of this technology is obvious. **99**

### Dan Tanner

Research director, Aberdeen Group

chronize changes within branch office files to the corporate file server. While the product uses Secure Sockets Layer and encryption and compression to protect communications, it uses the proprietary Novell Modular Authentication Service and the Novell International Cryptographic Infrastructure Interface for authentication or backups to the central office. Novell says it might need to use other software when the platform is extended for use on Linux and Win 2000/NT

The remote office appliance supports Microsoft's Common Information File System, the Unix/Linux Network File System, Novell's NetWare Core Protocol, HTTP,FTP and Apple's AppleTalk Filing Protocol.

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### Novell shows new GroupWise

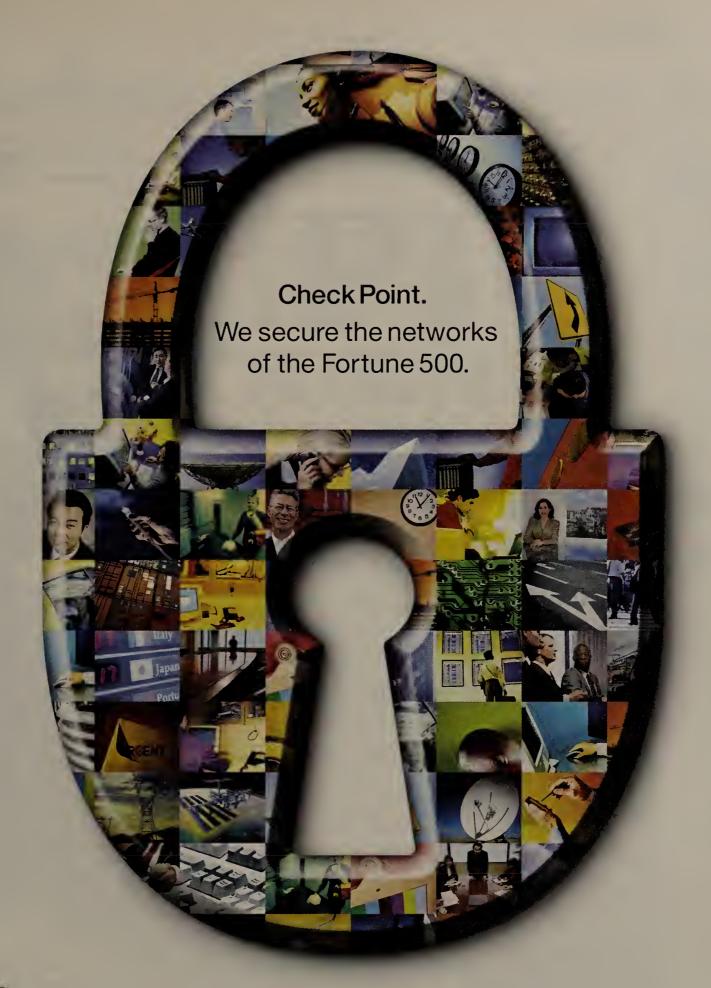
ovell announced last week that the next version of its collaboration and messaging package, GroupWise 6.5, was in a public beta and should ship early next year. New features include a Web-based user interface that lets customers filter out junk e-mail, scan for viruses and use contact management tools.

The company also has added an Internet messaging component, which lets users within an organization exchange short Secure Sockets Layer-encrypted messages. According to Howard Tayler, GroupWise product manager, the company will explain on this capability by adding a gateway feature by mid-mail that lets users send messages to users on other e-mail applied.

Note: GroupWise 6.5 is use of APIs to access standardsto a such as Internet Message Access Protocol Oct Access Protocol-based XML, which can to the note of the such as the such as the such as Internet Message Access Protocol-based XML, which can to the such as Internet Message Access Protocol-based XML, which can to the such as Internet Message Access Protocol-based XML, which can to the such as Internet Message Access Protocol-based XML, which can to the such as Internet Message Access Protocol-based XML, which can

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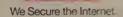
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### Instant messaging

continued from page 1

instant messaging, which experts say is showing it can foster productivity, especially when integrated with corporate applications.

Business use of instant messaging is expected to rise from 65.5 million users today to 260 million by 2006, according to IDC. The percentage of those using it for business is expected to rise from fewer than 40% today to nearly 90% by 2006.

Many companies are just starting to address instant messaging by learning about what is running on their networks today.

"We created quite an uproar in

June when our [regulatory] compliance department discovered [instant messaging] and said we had to ban its use," says Lee Blackmore, director of IT for Stifel Nicolaus, a brokerage firm in St. Louis.

Blackmore says a group of institutional brokers lobbied to keep their AOL Instant Messenger clients, which they had deployed without permission. He was forced to quickly deploy a management system, so he installed a gateway from IMLogic that provides user management and logs everything in the company's archiving system.

"Now we are sitting back and waiting to see how the industry moves forward and how the stan-

dards mature before we develop a corporate strategy on [instant messaging]," he says. "We are interested in reliability and control and positioning ourselves for future growth."

Blackmore says he is looking at IBM/Lotus Sametime, the forth-coming Greenwich instant-messaging server from Microsoft, a private financial services instant-messaging network from Reuters and the possibility of keeping his gateway.

Experts say Stifel Nicolaus is typical of companies that control outbreaks of instant messaging with hybrid systems combining consumer networks and corporate-controlled gateways. But corporate adoption is likely to turn on enterprise-grade systems and not retrofitted consumer services.

Those corporate systems will be based on the Internet Engineering Task Force's recently minted Session Initiation Protocol for Instant Messaging and Presence Leveraging Extensions (SIMPLE), which promises to create an environment comparable to e-mail and its Simple Mail Transfer Protocol in terms of interoperability.

SIMPLE also erodes the model used so deftly by AOL to build a customer base of 180 million, mainly that users can only send instant messages to other AOL users. With standards, companies along with their customers and business partners won't have to use the same platform or service.

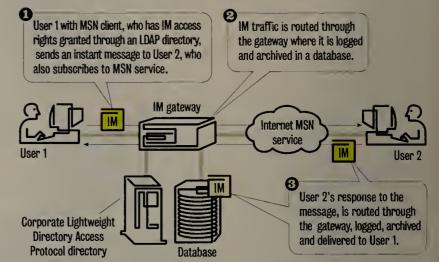
Instead, analysts say corporate systems will need to excel in providing integrated management controls and tools to build instant messaging into collaborative and line-of-business applications. Gartner predicts that by 2005, instant messaging will be integrated into half of the applications businesses use to interact with channel partners and customers.

"We have long felt that [instant messaging] is becoming a feature and not a product and will be most useful when used in the context of other applications," says Robert Mahowald, an analyst with IDC. "Increasingly there will be fewer customers that buy gateway products to use with consumer instant-message networks. Enterprise products will win out as the standards progress."

Vertical markets such as financial services and government have gone through that cycle and have signed on to or created private networks, such as the one Reuters launched last month based on SIMPLE. And there are

### **Retrofitting consumer IM**

Microsoft last week unveiled MSN Messenger Connect for Enterprises, which provides logging, archiving and user management to companies using its consumer instantmessaging service.



individual companies in front of the curve with fully deployed corporate instant-messaging systems. Osterman Research says 29% of companies have adopted a standard platform and 73% of those have settled on IBM/Lotus Sametime, clearly the leader in the enterprise market.

"We went through the cycle 12 months ago when we came out of an AOL pilot and 80% of the users liked instant messaging, but our security group had some caveats," says Dave Stuttard, vice president of applications for Avnet Computer Marketing in Tempe, Ariz., which distributes enterprise computer systems to resellers.

"We wanted to control the registration process; we wanted to control the encryption, file and application sharing; and we didn't want to be at the mercy of their service," he says. A year ago the company built its own instantmessaging infrastructure with Sametime and used the Lotus tool kit to embed instant messaging in other applications such as its Web-based Configuration Request application, which lets customers initiate an instant-messaging session with support staff if they have questions.

The company also hosts instant-messaging services for its customers, letting their employees open instant-messaging accounts, as a way to build loyalty and ease business communication. "I wouldn't be able to leverage that relationship with a consumer service," Stuttard says.

He says he is watching for vendor adoption of SIMPLE, which is supported in Sametime 3.0 and a handful of other products, because it will foster interoperability, resulting in an explosion in

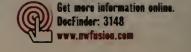
instant message use and a new round of IT concerns. But for now he says instant messaging has fostered awareness as to who is online, helped decrease long-distance phone calls and reduced decision-making cycles.

"There is no evidence that anyone wants us to switch it off," he says. "It is a natural way for us to do business. It's complementary to the way we communicate."

Last week, Microsoft unveiled its MSN Messenger Connect for Enterprises, and the previous week AOL introduced its AIM Enterprise Gateway. A month earlier, Yahoo introduced Enterprise Edition 1.0. In general, all provide the ability to integrate users with corporate directories, and log and archive traffic. All three integrate technology from one or both of the two leading gateway providers, Facetime Communications and IMLogic.

Microsoft's offering is a precursor to the enterprise-class instant-messaging platform, code-named Greenwich, it says it will ship mid-2003 as an add-on to the Windows .Net Server 2003 operating system. AOL is offering a support service and tools to integrate its service into corporate applications, and Yahoo is working with BEA Systems, Sun, Oracle and Novell as it and AOL attempt to cross from consumer to enterprise provider.

"The market is still young, and all these providers still have a chance to make inroads," says Michael Osterman, principal of Osterman Research. He says IBM/Lotus and Microsoft are likely to dominate, with AOL a potential wild card.



# Microsoft recasts Windows release

**BY JOHN FONTANA** 

REDMOND, WASH. — Microsoft has confirmed a change of plans for its forthcoming Longhorn release of Windows: The software will run on desktops but will not include a corresponding server version as previously planned.

By contrast, the follow-on to Longhorn, code-named Black-comb, will run only on servers. Microsoft had said the Blackcomb release would be the full .Net version of its operating system.

When Microsoft shipped Windows 2000 it noted that the desktop and server operating systems were now on the same release cycle in an effort to give companies a cleaner upgrade option. That plan, however, disintegrated with the follow-on operating system release code-named Whistler, which was divided into last year's release of Windows XP desktop and the forthcoming Windows .Net Server 2003.

As recently as September, however, Microsoft was still talking about Longhorn bringing the synchronization of server and desktop back online. Microsoft has worked on builds of Longhorn server internally for some time, but ship dates have slipped. Plus, given the economy, customers were telling Microsoft they weren't necessarily ready for a server upgrade.

Longhorn was originally planned for a 2003 release, but delivery of Windows .Net Server 2003, due more than a year ago, has now slipped into that time slot.

### Windows plan

Microsoft has confirmed that the Longhorn release of its operating system will be for the desktop only while Blackcomb will be for the server only.

March 2000: Windows 2000 server and desktop ship.

October 2001: Windows XP desktop ships.

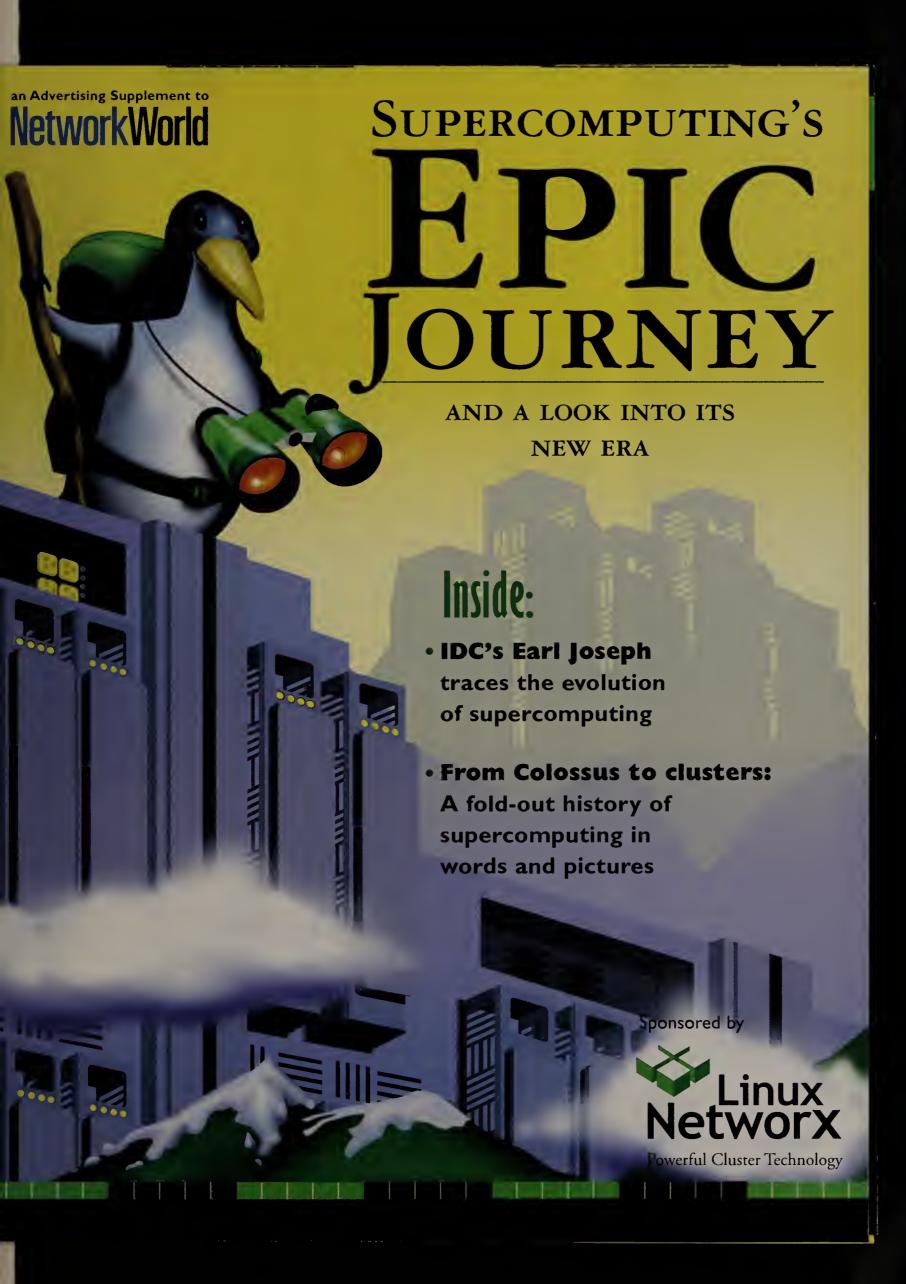
\*February 2003: Windows .Net Server 2003 to ship.

\*2005: Longhorn desktop operating system to ship.

\*2006 : Blackcomb server operating system to ship. 
\*Projected dates

Jim Allchin, group vice president for platforms, said earlier this year that Longhorn was now planned for 2005, but a Microsoft spokeswoman would not say if that date was for the desktop, the now-derailed server or both.

It could be that the Longhorn desktop will be coming sooner, given Microsoft's recently introduced Licensing 6.0 program and Software Assurance upgrade program that puts users on twoor three-year contracts that provide upgrade rights. Windows XP users likely will want to see something for their money if they have bought into Licensing 6.0.



# THE EVOLUTION OF THE

Linux clusters and standard hardware processors combine to create a landmark machine in the history of supercomputing. By Earl Joseph, Ph.D.

omputers arose from the need to perform calculations at a pace faster than is possible by hand. Once that problem was solved, the race was on to pit computers against themselves and meet ever-increasing demands for processing power.

At first, the race was all about improving raw calculation speed and capabilities. Then, the challenge of solving more difficult problems led to improvements in programming models and software. Eventually, supercomputers were born, enabling scientists and engineers to solve highly

complex technical problems.

Whereas once supercomputers were simply mammoth machines full of expensive processors, we are now entering a new era of supercomputing, one that takes advantage of improvements in processor and network technology. In this new era, Linux is used to pool the power of thousands of commodity off-the-shelf (COTS) microprocessors into machines that are among the fastest in the world. Understanding how we got here requires a look back at the evolution of computing.

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### Early computing

The earliest computers were mechanical and electro-mechanical devices, but the first high-speed computers used tube technology. Tubes were then replaced by transistors to create more reliable, general-purpose computers. The need for increased ease-of-use and the ability to solve a broader set of problems led to breakthroughs in programming models and languages, and eventually, to third-party application software solutions.

By 1954, IBM offered the IBM 650, the first mass-produced computer. FORTRAN, an important language for numeric or computational programs, was developed at this time by IBM's John Backus. In the early 1960s, general-purpose computers appeared from several suppliers.

The next step was to design systems to support parallel operations, in which calculations are performed independently of one another, improving performance for computationally intensive tasks. In 1964, Control Data Corp. (CDC) unveiled the 6600, considered by many to be the first supercomputer. It was capable of performing approximately 9 megaflops (Mflops), or 9 million floating point operations per second. In 1969, CDC offered the 7600, which performed at approximately 40 Mflops. In 1973, Burroughs offered the Illiac IV, an early parallel computer.

### Birth of vector supercomputing

Many problems in science and engineering are based on solving a large set of similar equations, known as a vector. In the mid-1970s, vector processing provided the ability to calculate vectors in a fraction of the time previously required.

At this time, Cray, Inc. introduced very high-performance vector supercomputers that had strong processors, high-speed memory systems and powerful I/O systems. In 1976, the Cray-1 became the supercomputer industry standard.

A short time later, Convex
Computer Corp. combined the lower cost of minicomputers with the performance of vector processors to create the mini-supercomputer market. Vector processing became the supercomputer standard for the next 20 years.

In 1982, the Cray X-MP added the ability to have multiple processors in one computer share memory and I/O resources. In 1988, the Cray Y-MP computer provided 2.6 Gflops using 8 processors. In 1992, the Cray C90 followed, becoming the first computer built with individual processors, each attaining speeds of 1 gigaflops (Gflops). A single Cray C90 could have up to 16 processors, for a total processing capacity of 16 Gflops.

In 1994, Cray shipped the first T90 vector supercomputer, with a peak performance of 58 Gflops. The T90 used up to 32 vector

### HROUGH THE YEARS.



1955

An early DEC VAX



Photo courtesy Hewlett-Packard Co

1977

Cover illustration by Michelle Barbera

2002-2003 Linux NetworX

# SUPERCOMPUTER

processors, the high point for a single vector computer.

Constructing a 32-processor shared memory vector computer required an expensive memory subsystem, however, resulting in a system price of \$35 million in the mid-1990s.

### Highly scalable computers debut

Besides being very expensive, vector computers are difficult to scale much beyond the T90's 32 processors. Yet, many computations require hundreds and even thousands of processors. Massively parallel processing (MPP) computers addressed this need by using a large number of relatively low-cost processors connected to one another and to memory via lower cost network connections. This approach enabled suppliers to build computers that could scale to any size the buyer could afford. It also led to the birth of the "grand challenge" problems, which are science and engineering problems with widespread impact, such as weather prediction.

Early MPPs were based on a simple design, dubbed Single Instruction Multiple Data (SIMD), that called for the same set of instructions or calculations to be performed on multiple data sets simultaneously. These systems fit certain applications very well, but the SIMD design was not flexible enough to address more than the easiest of parallel applications.

The introduction of Multiple

Instruction stream Multiple Data (MIMD) machines, which could address more complex problems by performing different calculations simultaneously on multiple data sets, led the way to more general-purpose highly scalable systems. MIMD machines retained the advantages of distributed memory architectures and nearly unlimited memory scaling. A MIMD supercomputer could also be built out of networks of workstations. Clusters of hundreds of Sun Microsystems, Inc., Silicon Graphics, Inc. and IBM workstations soon appeared, sporting each vendor's flavor of Unix. Interoperability and maintenance of the clusters, however, led to issues in scalability.

### Clustering proves cost-effective

Clustering microprocessors to form supercomputers grew from early experiences in deploying parallel supercomputer applications on clusters of minicomputers. Because it combined the advantages of lower cost computers with ever-faster microprocessors, clustering became the cost-effective solution of choice for many customers. Clusters were built using single-processor PCs, workstations and symmetric multiprocessing (SMP) nodes. Software solutions were developed to allow these large sets of separate computers to look and act more like a single computer. Linux became a standard operating system on many clusters because of its low cost, reliability and openness.

In the late 1990s, the largest supercomputers had production performance rates exceeding 1 teraflops (Tflops), or one trillion operations per second. Four architectures achieved this level of performance:

- MPPs
- Linux PC clusters
- Vector supercomputers
- Scalable SMPs

Modern supercomputer clusters combine the performance strengths of vector computers, the scalability of MPPs, the attractive pricing of PCs and the reliability of the Linux operating system. Clustering provides both good price/performance and the ability to scale to tens of teraflops.

### Toward the future with Linux

We are now entering a supercomputer generation characterized by clusters made of COTS microprocessor systems. A node in the cluster is often a barebones PC with a commodity microprocessor, such as the Intel Pentium 4 or Advanced Micro Devices, Inc. Athlon XP, which combine good performance and a lower price, compared with older workstation processors. The emergence of open source Linux and high-speed network fabrics have spurred the growth of home-brewed supercomputer clusters as well.

The most recent and largest Linux supercomputer cluster is being installed at Lawrence Livermore National Laboratory (LLNL), a U.S. Department of Energy laboratory operated by the University of California. The 2,304-processor Linux cluster supercomputer that Linux NetworX, Inc. is building for LLNL will be the fastest Linux Intel-based supercomputer, with a theoretical peak performance of more than 11 Tflops.

"This new class of computers currently is the most powerful example of a system whose defining characteristic is high capability at relatively low cost, using commodity processors and open-source system software," says Mark Seager, assistant department head for TeraScale Systems at the Livermore Computing Center. "This approach exploits an attractive cost-performance curve to produce a system that supports higher-end scientific computing for many classes of scientific application."

Stephen Hill, Linux NetworX's president and CEO, believes clustering is representative of the next stage in the evolution of supercomputing. "Clustering allows organizations to achieve results quicker, with far greater flexibility and at a lower cost-of-ownership than is possible with competing technologies," he says. "This is why Linux clusters are rapidly becoming the standard in high-performance computing."

Earl Joseph is research director for high-performance computing at International Data Corp., a Framingham, Mass.-based research organization.





The Cray T932



Photo courtesy Cray. Inc.



hoto courtesy LLNL





Photo courtesy Linux Networ



every aspect of cluster computing. Our end-to-end approach makes cluster technology more powerful and easy-to-use. To find out how our cluster solutions can help you lead a far less complex existence visit us online to receive more information at www.linuxnetworx.com



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**Site:** Lessons from Leading Users

# FedEx Freight delivers with Linux Web server migration

### **BY PHIL HOCHMUTH**

MEMPHIS, TENN. — FedEx Freight recently put a new face on its Web operations, and so far the company likes what it sees.

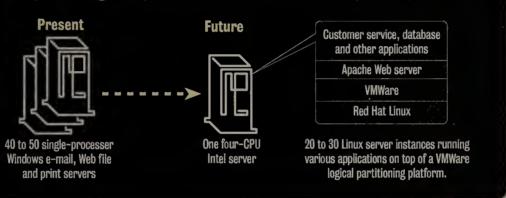
The large-volume trucking division of FedEx recently installed 15 Red Hat Linux 7.2 and 7.3 servers running Apache Web server to act as a front end to its customer service application, used by businesses that hire Freight to deliver multitruckload shipments of goods across the country.

"We've been looking toward the Linux platform for some time" as an alternative operating system, says John Boreni, managing director of computer services.

The servers replaced a dozen Windows NT machines running Microsoft Internet Information Server as a Web server

### The Linux crunch

FedEx Freight is looking to save money on hardware and simplify management by replacing multiple Windows servers with a multiprocessor Linux box.



application.

The advantages of the move include improved security and lower cost of software licensing, Boreni says.

"We've observed that, out of the box,

the Linux servers have [a high level] of security ... with things like built-in firewall capabilities," he says.

Boreni also anticipates seeing reliability improvements, although he has no data yet to compare Linux and Windows.

"Since we installed the Linux servers" in June, Boreni says, "we've had only two failures, and neither of them was related to the operating system."

Porting the Java-based applications used by the Web servers to make database calls to back-end systems was painless when the Linux swap was done, Boreni says. FedEx Freight loaded the Linux servers with a version of the Tomcat Java application server, which runs on top of Red Hat Linux. By installing the Tomcat application server, FedEx Freight was able to support the Java-based applica-

tions it had been running on the Windows Web servers — now replaced with Linux servers — without having to rewrite its applications.

See FedEx, page 18

■ IBM introduced a new midrange server last week that has many of the autonomic computing features of its larger servers. The pSeries 650, an eight-processor server that replaces the p660, has hot-swappable tape and DVD drives. It also features ChipKill memory and bit scattering, which allows memory chips to be deallocated in possible failures and data to be reassigned to healthy memory, respectively. Another feature, processor deallocation, lets failing processors be replaced automatically with healthy processors. In addition, the pSeries 650 is capable of being logi cally and dynamically partitioned. One partition can be allocated per processor, and different operating systems and applications can run on each partition. The pSeries 650 starts at \$30,000 and is scheduled to be available next month.

### www.ibm.com

# Auspex software tracks file changes

### **BY DENI CONNOR**

SANTA CLARA — Network-attached storage appliance vendor Auspex Systems this week plans to introduce technology that companies can use to track changes to their files for the purpose of improving application workflow and integrity.

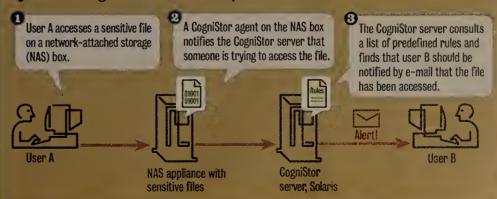
Dubbed CogniStor, the technology monitors NAS appliances and other servers for files that are modified, created, deleted or accessed. It notifies end users or applications of specific changes made to content and, based on a set of rules, dictates what, if any action should be taken.

"Since we know a lot about the files our [NAS devices] handle, it is not a difficult extension to keep track of file changes. additions and deletions," says Bob lacona, vice president of marketing.

For instance, a network manager might want to automatically scan any file being saved from a diskette drive or CD-ROM for viruses. The manager could create a rule that says,"If a file is being saved from Drive A or D, scan the file for viruses, isolate it to its own directory if a virus is detected, and notify the administrator by e-mail."

### File tracking

Auspex's CogniStor software can be used to protect application integrity by monitoring file-access attempts.



Another example would be a search engine company that has to constantly reindex its content in response to queries. It could use CogniStor to update search results when its software indicated that changes to Web pages had occurred. Or, a law firm might want to alert attorneys to documents containing certain sensi-

At first glimpse it appears that Auspex's

storage technology doesn't operate much differently than that of snapshot back-up products that save changed files to media whenever an administrator specifies.

But Blair Hicks, systems administrator with LIDP Consulting Services in Wood ridge, Ill., explains the difference.

"We were using a snapshot utility every hour on the Auspex server to recover thes

See Auspex, page 18

11/18.02 Infrastructure 18 NetworkWorld www.nwfusion.com

# Zone Labs fights viruses with Integrity

Company upgrades virus containment software, teams with Cisco.

### **■ BY TIM GREENE**

LAS VEGAS - Zone Labs is announcing upgrades to its security software this week designed to make it easier for companies to limit the spread of viruses and worms on their networks.

Version 2.0 of Zone's Integrity software being introduced at Comdex this week lets businesses restrict individual desktops to access only select segments of corporate networks, making it easier to confine damage done by attacks.

An Integrity 2.0 server sets policies centrally, and software agents that function as personal firewalls on each desktop enforce the poli-

cies. These policies range from what IP addresses each machine can access to what applications are allowed on the network.

With the network access of

each desktop defined Integrity, threats can be confined more easily, which is not

the case when individual workstations have unfettered rights to any network machine, says Lawrence Pingree, global network security architect for PeopleSoft. "If we can put an agent on desktops to restrict what you can do, it's a huge, huge advantage," he says.

The Code Red and Nimda worms wrought havoc with PeopleSoft's network for several days last year because the internal network was "pretty wide

> open. If you connected to the wire, you could connect to anything," Pingree says.

Had Integrity 2.0 been in place, it could have kept the worms in limited areas of the network, where they could be dealt with quickly,

Integrity 2.0 also includes a reference-scan tool that makes sure desktops have a standard configuration of applications. Version

2.0 also includes a programgrouping feature for managing applications and application components to make it simpler to track all the software elements an application uses.

Pingree says PeopleSoft is evaluating Integrity and software from competitors Tiny Software and Symantec.

Also, Zone Labs and Cisco have cooperated to make sure corporate remote access users can't activate VPN tunnels unless their firewall is turned on.

The companies are announcing at Comdex that Zone's Integrity policy management console works with Cisco's 3000 VPN concentrator so remote access PCs don't become a weak spot attackers can exploit to gain entry to corporate networks.

"Cisco's firewall [that comes with the VPN client] is basic. With Integrity, we can ensure certain policies exist on the laptop before it connects to the VPN," Pingree says.

Integrity 2.0 ships next month and costs \$65 per agent license, with a minimum of 25 licenses. There is no charge for the server. Current customers with maintenance contracts get the upgrade to Version 2.0 as part of that agreement. Current customers with maintenance contracts get the upgrade to Version 2.0 as part of that agreement.

### **Site:** Lessons from Leading Users

continued from page 17

Boreni adds that the move to Linux would have been more complex, and possibly cost-prohibitive, if it had been necessary to convert his applications from Windows to Linux.

"Java made that an easy transition," he says, considering the applications run exactly the same on any platform with Java application server support.

While migrating the Web servers to Linux was part of a strategic decision that Boreni and other IT executives at FedEx Freight outlined, Linux had proliferated in the company's network over the past few years. Boreni says Linux has been used on a spot basis for file servers, DNS services and as information kiosks.

The knowledge base of Linux among his staff was tapped for the Web server project, as Boreni and his staff decided to install the Linux servers in-house on "a few extra servers," rather than purchase new pre-installed Linux machines from a vendor, such as IBM, Dell or Hewlett-Packard.

"We've had some people who have been interested in Linux," Boreni says, and "our staff has had some training in Linux. The [server software] installation itself is pretty straightforward." In the future, though, he says he would purchase prebuilt Linux servers from a vendor to save time on larger server deployments.

"Today, we have about 5% of our Intel servers on Linux," Boreni says."I'd expect in six to 12 months to have that number in the 15%

One area of Linux expansion at FedEx Freight includes a server consolidation project Boreni and his team are planning (see graphic, page 17). The company intends to consolidate 40 to 50 servers — including file, print and other applications — onto 20 to 25 "virtual" Linux server instances running on one four-processor

FedEx Freight is using software from VMWare to break down the listed box into logical partitions, or Lpars, as in the mainframe world on which separate operating systems can be run.

"We expect to achieve some pretty significant cost reduction, mainly on the hardware side," Boreni says.

Staff Writer Derase Dubie contributed to this story.

# Sun, Check Point join forces

High-speed firewall/VPN gear based on Sun server hardware.

### **■ BY TIM GREENE**

Sun this week is scheduled to introduce a bundle of its server hardware with Check Point Software technology to create firewall/VPN appliances that, at the high end, are suitable for protecting data centers.

Dubbed the Sun LX50 VPN-Firewall Appliance Secured by Check Point Software, the gear

comes with either one or two processors to offer a range of throughput up to a 2G bit/sec firewall or 640M bit/sec VPN encryption, fast enough to filter and encrypt traffic in and out of corporate data centers.

The high-end box will compete with the Nokia IP740, a custom hardware appliance that boasts 2G bit/sec firewall throughput and sports Check Point VPN-1/

Auspex server to be unresponsive

for 20 to 30 seconds — this

Firewall-1 software. Nokia's box is listed at more than \$20,000, which is in the range of the highend Sun appliance. A low-end LX 50 comes with one Pentium III processor and the high-end system comes with two.

The box has two open slots that can be fitted with four-port 10/100M bit/sec Ethernet cards, dual-port Gigabit Ethernet cards or VPN accelerator cards. It is a general-purpose Sun server with a Linux operating system hardened by stripping off support for services that are unnecessary to firewall and VPN functions.

Sun and Check Point have collaborated before, first in February with Sun's iForce Perimeter Security bundle, which included Sun hardware and Check Point software, as well as antivirus and intrusion-detection tools from other security vendors. When Sun announced the LX 50 server in August, it said it was working with Check Point and others to optimize the platform for their software. Check Point also has ported its premium Performance Pack software to run on Sun's Solaris operating system.

Prices of the hardware ranges from \$3,300 to \$5,700 depending on the configuration, plus the Check Point software that ranges from \$1,000 to \$25,000. The bundle is available next month.

continued from page 17

if we needed to," says Hicks, whose company consults for the life insurance industry and has 100 programmers constantly making changes to software code. "CogniStor runs on a separate server and tracks files whenever they change. When the snapshot software ran, it caused the



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caused our developers some concern." Auspex will make its CogniStor software available in several ways. The company will license

the software directly for \$2,500 per server to users and to vendors for incorporation in their applications. The software runs on a Solaris server separate from a NAS appliance or a file server running Windows NT/2000 or NetWare.

Auspex also will include the technology in its IntelliSnap and IntelliScan products, which are scheduled for introduction next month. IntelliSnap is versioning software that can restore copies of any file from any point in time. IntelliScan alerts virus-detection packages to scan new or changed files immediately.

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# Start-up pegs hopes on hops in mesh wireless LAN

**BY JOHN COX** 

LAS VEGAS — Just days after the Federal Communications Commission gave its technology a green light, MeshNetworks this week is expected to begin shipping its peer-to-peer product line that creates a new architecture for wireless LANs.

Instead of client devices connecting to a wireless access point, MeshNetworks routing software turns any 802.11b or 802.11a

wireless LAN adapter card into a routerrepeater. Client devices can hop through each other to reach an access point attached to a wired LAN or backhaul net.

The new products — the MeshLAN Multi-Hopping 802.11b AP400 Access Point and WR400 Wireless Router, and the Mesh Enabled Architecture (MEA) Intelligent Access Point and Wireless Router — are being demonstrated this week at the Comdex

Company officials say that by creating a mesh network instead of a hierarchical network, the software provides a number of benefits, including:

- Offering users several wireless pathways to an access point.
- Extending a client's range far beyond the 100 to 300 feet of 802.11b wireless LANs by hopping through other devices.
- Sustaining data rates at typical 5M to 7M bit/sec throughput over longer distances than is possible with today's 802.11b wireless LANs.
- Adding hours to battery life, because "smart hopping" uses much less power than a hierarchical network.

The FCC strictly controls the power output of wireless devices, based on the frequencies in which the devices operate. As a result, physics dictates that if you increase distance between devices, throughput drops; and, at a given power level, the only way to increase throughput is to shorten the distance between devices.

The MeshNetworks software, originally developed as a Defense Advanced Research Projects Agency (DARPA) project to create flexible, self-healing battlefield networks, lets a PDA hop through a series of laptops, wireless-equipped printers or other handhelds, and still maintain the maximum 802.11b throughput, says Rick Rotondo, vice president of technical marketing for the company.

> uct lines are aimed at enterprise wireless LANs and wireless LAN services from carriers and service providers. The software

algorithms created by the company's engineers minimize the latency caused by hopping to less than 5 msec per hop and juggle the complexities involved in routing packets among a group of devices, all which might be moving in relationship to each other.

At a demonstration mesh network covering five square miles of Maitland, Fla., where the company is located, Rotondo says he would drive prospects around in a car, as they made wireless LAN voice-over-IP calls, surfed the Internet, downloaded real-time stock quotes or even listened to an Internet radio station, all without stopping, all without interruptions.

MeshLAN and MEA differ only in their radio technologies. In essence, MeshLAN is code added to any 802.11b radio card via silicon or via firmware on a network interface card. MeshNetworks will make the code available for 802.11a wireless LAN products also.

By contrast, MEA uses a radio technology, dubbed QDMA, derived from the original DARPA project. This radio can incorporate many of the components used in an 802.11b card but is not 802.11b-compliant, according to Rotondo. QDMA incorporates an array of advanced features, such as improved multipath handling and doppler fading, which sustain wireless connections at a maximum burst rate of 6M bit/sec on a moving vehicle.

Rotondo declines to name the company's initial eight customers.

MeshNetworks: www.meshnetworks.com

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### **PROFILE: MESHNETWORKS**

Location: Maitland, Fla.

Founded: January 2000 Business: Peer-to-peer wireless LAN and mobile broadband network technology.

Management: Masood Garahi, chairman and CEO; Peter Stanforth, CTO

Financing: \$27 million from investors including Redwood Ventures, ITT Industries,

BancBoston Ventures, Patriot & Co. Ventures

Customers: Eight, though none have been named publicly.

Competitors: Nokia, SkyPilot Network

Fun fact: Chairman Garahi's previous job was with "TV Guide," where he

oversaw development of next-generation interactive television products.



### The trouble with computers

was going to write this column about newly resigned Hewlett-Packard President (and former Compaq CEO) Michael Capellas — the best thing to happen to Compaq since Rod Canion. I say was, because before writing I always check the previous one or two columns to see if there's anything left over which might need clarification.

So I went online to my column archive at www.nwfusion.com, DocFinder: 3130, but the column from the Nov.4 issue wasn't listed.1 knew it had appeared — I'd read it. So I pursued the problem with Network World Fusion's Executive Editor Adam Gaffin, who quickly found the culprit: "somebody" had labeled the column as being written by David Kearns, not Dave Kearns. The automated applications used to formulate Network World Fusion didn't relate Dave Kearns and David Kearns.

Had a human linked the column to the index, the human would have noticed the column's name ("Wired Windows") and the writer's last name ("Kearns") were the same in both and most likely concluded that Dave Kearns and David Kearns were the same person. Automated systems, though, compared Dave to David and found no match.

While we have succeeded in automating many tasks, and while there are lots of software apps and services that could easily handle matching up "Wired Windows — Dave Kearns" with "Wired Windows — David Kearns" that ability is not present in the mundane programs we use every day (well, unless you work for Google). We've come to accept the computer as an intimate part of our daily life. For many it's the primary means of communication with the rest of the world.

The computer's major strength is that it does exactly what you tell it to do. That's also its major weakness. We rely on the computer for routine jobs and rely so much that we frequently forget to check on its output.

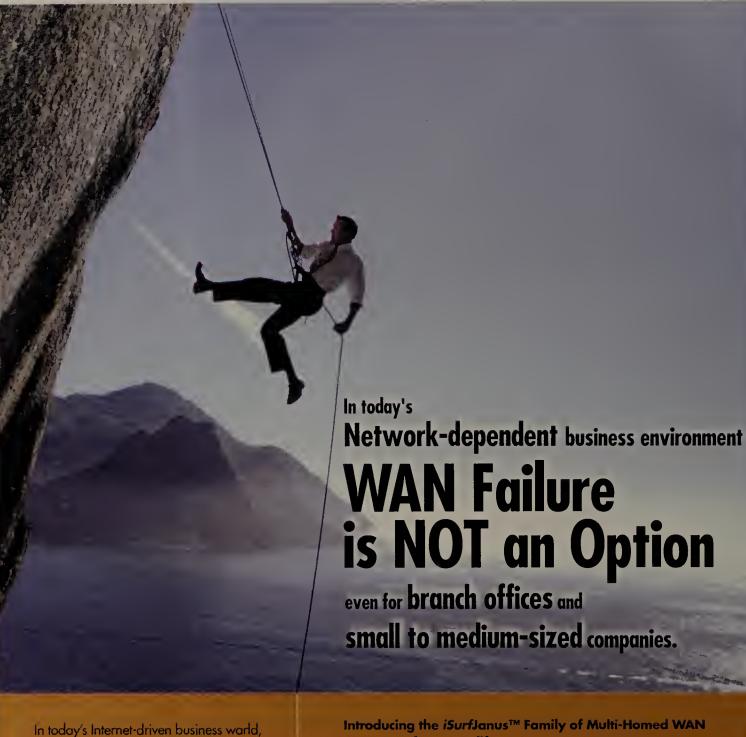
Take spell checkers, for example. They verify the words we type. Not the words we meant to type, just the words we actually type. Typing "I will do that" rather than "I will not do that" won't be caught by a spell checker or a syntax checker. If you had a logic checker, it still wouldn't catch it. Only by rereading what you typed would you, perhaps, discover your mistake.

I've been caught blindly trusting the output of my computer on more than one occasion, and I'll wager you have also. But when that mistake does come to light, remember that it was "somebody," not some computer, who perpetrated the error.

Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at wired@vquill.com.

### Tip of the Week

The really neat thing about Michael Capellas — now said to be in line as the next CEO of WorldCom -- is that he came to Compag as CIO. See how far an IT executive can go? Check his résumé at DocFinder: 3131 and replan your future. Who knows how far you might go?



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It's like a force of nature. A host of products and technologies are fast making work from anywhere business as usual. In this Net. Worker special edition, we'll show you what's new, what's coming and the ways work is evolving as we speak.

# It's all about location, location, location

Royal Sonesta Hotel finds key to full wireless deployment is Newbury's location-based technology.

### **BY TONI KISTNER**

BOSTON — John Fairfield had hit a wall. The senior systems manager at the Royal Sonesta Hotel in Cambridge, Mass., wanted to deploy an 802.11b wireless network in both towers of the 400 room facility, but he knew no single application could justify the \$40,000-plus cost. When he learned of Newbury Networks, Fairfield knew he'd not only found his killer application, but more than a half-dozen of them.

The Boston start-up has developed what it calls location-enabled networks (LEN),

technology that runs on top of an 802.11b network. LENs adds the ability to push information relevant to a device user, based on his location. As such, LENs knows the location of device and user.

Say you're a business traveler waiting for a flight at Boston's Logan Airport Gate 70. You flip open your notebook, PDA or any 802.11b-enabled device, and LENs automatically connects you to the wireless network and pinpoints your location. It then informs you that your flight is 20 minutes late, that the following restaurants are within two gates, and that this gate's wireless access is sponsored by CNN, which is providing free access to its Web site. Moreover, on this concourse wireless LAN access is available from T-Mobile, iPass and Wayport, so if you're a subscriber to any of these, log on now. If not, you can subscribe to your choice for \$9.95. Pick up your stuff and move down to Gate 32, and LENs will provide relevant information for that area.

Newbury's CEO Michael Maggio says the

See LENs, page 28

### Life through the LENs

A few examples of potential applications using Newbury Networks' location based technology

FOR TYING TELEWORKERS TO THE ENTERPRISE

Gorporate security Firms can provide wireless access to guests only in certain locations; monitor and block attempts to access the network by location and pinpoint the location of anyone trying to break into the wireless LAN.

Museums and galleries can offer art tours in which visitors are pushed photos and text about the various works as they approach

Teachers can disable Web access as students enter a classroom, make available only the Web sites relevant to the class, and push homework and class materials to students' wireless devices.

Big-box retail Used in conjunction with wireless LAN enabled barcode scanners, LEN can give sales reps access to up to date inventory, give managers the location of sales associates, and push relevant info about products to them.

ea care

Hospitals can bolster security by allowing access to patient records only to certain people when they are within certain zones such as the emergency room or patient's room. By putting an 802.11b tag on a piece of medical equipment, the hospital can monitor its location.



With a quick flip, Acer's TravelMate TabletPC transforms from tablet to notebook.

# Tablets take on the corporate world

BY KEITH SHAW

Nestled between the world of handheld devices and the notebook computer sits the tablet. Long maligned as a niche product for vertical industries, Microsoft and its manufacturing partners have breathed new life into the device, hoping to convince enterprise workers that it's time to rethink the usefulness of their notebook PCs.

> The idea of bringing tablets to a horizontal audience isn't new - it's just never been successful. Earlier products suffered from high cost, slow processors and a serious weight problem. The new devices run Windows XP Tablet Edition, boast faster processors and enhancements designed to

appeal to what Microsoft calls "corridor warriors," those who carry notebooks from meeting to meeting. Microsoft is betting corridor warriors will tote tablets instead, take

notes on the machine, and then redock the system when they return to their desks.

We received two prerelease Tablet PCs, one from View-Sonic (the ViewPad 1100) and HP (a production model of the Compaq Tablet PCTC1000). We had a few weeks to see whether they would change our lives or work habits.

We showed the tablets to curious colleagues, and conected to various wired and wireless networks. Because both machines use the new Tablet PC Edition operating system, we focused on its features first.

The standout application is the Journal, which resembles a sheet of white loose-leaf notebook paper. When you write on the screen with the special pen, the tablet writes on the "paper" in your handwriting. The application then can store your notes in a searchable file. The Journal also converts your handwriting into digital text, but not as successfully. Whether you like the handwriting-recognition feature

See Tablets, page 28



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depends on the legibility of your

lack both, stick to saving the file in

your handwriting. The input technol-

ogy is integrated into other applications,

such as Word and Outlook (where you can send handwritten notes via e-mail). Other

than that, the operating system looks and

On the hardware side, products vary con-

siderably in screen size, processor, memory,

expansion ports and price. Some include

docking stations (see graphic at www.

Some models use the slate style; others, the convertible style. Looking like a tradi-

tional table, slate-style devices like the

ViewSonic model we tested are carried

around like a clipboard. Keyboards are

optional. The convertible style lets you con-

vert the device from a tablet style to a more

traditional notebook style by swiveling

around the screen and adding a keyboard.

nwfusion.com, DocFinder: 3136)

continued from page 25

**Tablets** 

feels like XP.

# **Crafting** a

Confused about which techn

### ■ BY JOANIE WEXLER

Pockets of wireless connectivity abound, making mobile and remote work easier than ever. The trouble is with today's wealth of wireless networks - mobile 2.5G WANs, satellite, broadband wireless last-mile Internet access, Bluetooth personal-area networks, and paging and messaging services — in various stages of standardization and deployment, and applications overlap, make crafting an integrated wireless network plan a tough task (see graphic, page 29).

Travelers Property Casualty uses a mix of 2.5G services from Sprint PCS with satellite to balance coverage and cost when processing claims from its Catastrophe Response Vehicles in the field.

"Where there are gaps in Sprint coverage, the vans switch over to satellite," says Raul Matamoros, vice president of telecommunications. Matamoros says Travelers is experiencing 50K bit/sec speeds fairly consistently with the new Sprint service.

### **New networks**

This year, mobile carriers AT&T Wireless, Sprint PCS and T-Mobile finished upgrading their U.S. network infrastructures to 2.5G packet-switched technology. Persubscriber throughput is between 20K and 60K bit/sec — a big boost from 14.4K bit/sec,2G network speeds,but still a far cry from broadband speeds.

Pricing plans for 2.5G vary from the top five U.S. mobile WAN carriers but average about \$50 per month for a respectable chunk of data usage. Unlimited usage costs about \$100 per month. Handsets with 2.5G capability that bundle voice access with HTML browsers, Microsoft applications, digital cameras and other functions cost about \$200. By contrast, mobile satellite



enough to act as a slate and a convertible-style

Acer's Travel-

Mate Tablet PC fits this description.

HP's TC1000 acts like a slate, but with a few hinge flips, converts into a small ultraportable notebook with a small keyboard. When you add a docking station, the tablet PC transforms into a larger notebook, or even a desktop system. The TC1000 can look like a regular notebook with a full-size keyboard and monitor attached. When you get a phone call, you can swivel the notebook down and it goes into its 'writing mode, which launches the Journal application so you can take notes. When you're through, you can swivel back and resume using the device like a notebook.

This flexibility is what IT managers will find most intriguing about the TC1000. HP says it wants the user to decide how best to use the device, rather than dictate a single form factor.

The thrill or pain of these new tablets depends on you. If the job entails carrying around a clipboard, the new handwriting features and applications could improve productivity, especially when combined with 802.11b wireless connectivity. But winning over corridor warriors is another matter. Those who prefer taking notes longhand might switch, but those who're accustomed to typing notes on a keyboard will see little reason, especially if their notebooks are lighter than the tablet.

> Another editor here (a true corridor warrior) summed it up best.

After oohing and aahing for several minutes, he said, "Nice device — too bad they won't sell." He just couldn't see how the tablet PC would change his life.■





ViewSonic's V1100 Tablet PC has a "slate" design to let a user tote it around like a clipboard.

continued from page 25

company figured out how to define wireless zones within a building, then built an application server that allows the provisioning of content, information and network access based on the device-user's identity and location, though he won't elaborate. The key piece of the system is the LocaleServer, which has the ability to gather data from multiple access points and feed it into an algorithm. The server can then determine or predict the location of client devices within about ten feet or less.

LocaleServer works with any 802.11benabled device. Newbury recommends Hewlett-Packard/Compaq iPaqs because they use the PocketPC operating system and have lots of memory and processing power.

### **Application windfall**

Because Newbury's technology was still in beta testing when Fairfield learned of it, he and hotel Vice President and General Manager John Murtha brainstormed ways to test it out on a noncritical system. Because the hotel boasts more than 60 works of fine art in its lobby and second floor public space, Newbury and Fairfield's team worked to build an art tour application that went live in June.

Visitors are given Compaq iPaqs, and as they pause before each work of art, the locale server feeds the device an image of the work via a Web browser, as well as a text description and background of the artist.

Installation took longer than expected, Murtha says. "The system didn't run smoothly until September. We faced challenges in training it to know where it was vis à vis a particular piece of art."

"Our building was to blame for much of it. We have lots of shapes and open spaces. But now the system runs pretty slick," he says.

For the Royal Sonesta, the gallery application is just the tip of the iceberg. Because one of the two towers is outfitted with wireless, Fairfield is developing applications to increase the efficiency of the hotel's systems and customer service, to showcase the system's capabilities and get funding to deploy wireless in the second tower.

For instance, Fairfield and Newbury are building a trouble-ticket tracking system that uses Blue Ocean Software's Track-It software. With it, the chief engineer can pull up a diagram of the building that shows the location of all the workers. He can then dispatch a particular plumber, electrician or maid in the closest proximity. The closest porter can be called on the spot to set up a podium in a conference room, increasing

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service from Globalstar and Iridium target voice applications with their below-10K bit/sec speeds. Service can cost up to \$4 per minute for roaming, and basic satellite phones cost from \$500 to \$1,500. So think "rental" for those infrequent trips to the hinterlands.

#### Wi-Fi fanfare

IEEE 802.11b, or Wi-Fi, technology dominates wireless LAN deployments. These networks provide 11M bit/sec wireless connections in homes and public places.

"Wi-Fi, used within the home for sharing a broadband Internet access link, is the primary driver of Wi-Fi in businesses and hot spots," says In-Stat/MDR senior analyst Gemma Paulo.

This occurs because once home users get a taste of broadband access from anywhere around the house, they start pressuring their IT departments for the same flexibility in the office and on the road.

Paulo cites wireless routers, which combine a Wi-Fi radio access point, last-mile

# Although Wi-Fi service deployments are n the upswing, it will be a while before they are installed in every truck stop.

broadband connections and IP routing, as "the hottest networking product for the home." She estimates that worldwide home wireless router shipments will reach 6 million this year, and jump to 11 million in 2003.

For mobile executives, commercial Wi-Fi

Here is a snansh	ot of what 2 5G	technology is available	
Carrier	2.5 technology	Current coverage	
AT&T Wireless	GSM/GPRS	5,000 U.S. cities and towns, roaming agreement throughout 65 countries.	
Cingular Wireless	GSM/GPRS	Six U.S. markets, 10 more plannes by year-en	
Sprint PCS	CDMA/1xRT	300 large U.S. cities, 4,000 communities.	
T-Mobile	GSM/GPRS	6 000 U.S. cities	
Verizon Wireless	CDMA/1xRTT	800 large U.S. citles.	

services are emerging from many types of companies for a \$30 to \$75 monthly subscription fee or a per-day connection charge of usually less than \$10. Companies focused specifically on Wi-Fi services are often called wireless ISPs (WISP). Wayport is perhaps the largest WISP, offering services in 475 hotels and 10 airports. Smaller WISPs include Airpath Wireless and Surf and Sip.

Boingo Wireless doesn't build its own wireless network, but instead offers subscriptions to services that span the aggregated footprint of many partner Wi-Fi networks. In this way one subscription buys users coverage in more places. Imminent Boingo competitors will be iPass and GRIC, which are just getting started in Wi-Fi to complement their international remote-access aggregation businesses.

T-Mobile is the first carrier to commit to widespread Wi-Fi services as a highspeed complement to its mobile WAN services, while others such as Cingular Wireless and Nextel Communications are still agonizing over the Wi-Fi service business case.

"I must take into consideration my current investment and what I have to pay to Mr. [Federal Communications Commission Chairman Michael] Powell" for 3G wireless spectrum, said Andrew Goddard, director of Cingular's Professional Services Group, at a recent meeting of the Silicon Valley Chinese Wireless Technology Association. "Hot spots will be built, whether I build them or not."

The same themes apply to wireless network decisions as those that have come before: Sometimes you have to trade off bandwidth for distance.

Although Wi-Fi service deployments are on the upswing, it will be a while before they are installed at every truck stop. In the meantime, look to wireless LANs, mobile WANs and even Bluetooth PANs to solve different communications and cabling problems. As client hardware and software vendors continue with their multinetwork integration efforts, the technology-management and cost burdens will ease up for users and IT departments.

Wexler is an freelance networking technology writer/editor who writes Network World's Wireless in the Enterprise newsletter. She can be reached at joanie @jwexler.com.

customer service.

Similarly by tying the LENs into the hotel's property management system, if a guest complains about noise in a particular room, security personnel will know who's staying in the room before they answer the call, without having to call the desk.

In a clever move, Fairfield also is wiring the access points on each floor into a battery backup that's wired into the hotel's emergency power system. If the power goes down, the devices will function on the locale server for up to two hours.

Because the current iPags include voice capability, Fairfield also plans to use them as two-way communication devices, replacing the more costly walkie-talkie and pagers the hotel currently uses. Workers can either communicate via e-mail (the device beeps on receiving a message) or voice. Today, if a maid supervisor needs to send a staffer to a given room, she must call out to all the maids on the floor via walkie-talkie, the maids to answer the call to dispatch who's closest. With this system, she can locate the maid nearest the problem and contact her directly on cross-communications chatter.

When the iPaqs eventually add a video camera, Fairfield envisions his security team using them to document incidents — for taking pictures of damage done to a room, for instance, and to record witness statements on the spot.

Another advantage is increased wireless network security. Should anyone try to break into the network by sending a bogus media access control address to the server, the server will report the location of the offender to security headquarters. If that person tries to access the network from a car across the street, the network won't even attempt to make the connection.

Yet another benefit to the hotel is the ability to ensure corporate visitors pay the corporate rate for conference room wireless access, and regular guests pay the lessexpensive rate for access in public areas.

"Today,a guest can walk into the lobby,pay \$10 for a connection, go into the meeting room and use the connection to conduct a meeting, avoiding paying the \$100 fee for function-room access," Fairfield says. "With locale server we know where they are."

Although Murtha appreciates the internal efficiencies gained by the system, company executives still need to be convinced to finance the full wireless LAN deployment.

Competitive advantage could do the trick. "If a group of 100 guests is looking at my hotel or a competitor, if I can get the business because of this technology, I just paid for [the second tower wireless LAN deployment] four times," he says. ■





oday, at the opening of Fall Comdex in Las Vegas, Linksys sealed its reputation as the 800-pound gorilla of small office/home office networks by announcing it will ship the first 802.11g wireless gear in early December. Yes, you heard right. The long-anticipated specification still won't be ratified until early June, and compliant products still won't enter the market for months. No matter, to capitalize on pent-up demand, Linksys has gone ahead and built "pre-g" products using silicon from Broadcom based on the draft specification.

It could be a smart move. 802.11g provides the best of both worlds. It runs in the 2.4-GHz band like 802.11b products, so it's backward-compatible, and it provides faster

# Linksys, Proxim make (radio) waves at Comdex

54M bit/sec data rates, like 802.11a. Even better, 802.11g adapters combined with a dual-band 802.11a/b access point let you connect network clients using 802.11a, 802.11b or 802.11g adapters. Workers who shuttle between wireless home and corporate networks can connect to an 802.11a or 802.11b network in the office, connect to an 802.11b network at home and upgrade it to the faster 802.11g technology without sacrificing corporate connectivity.

**Net.Worker special edition** 

With pre-g, Linksys says it hopes to eclipse market demand for 22M bit/sec wireless products from 3Com and others built using Texas Instruments' proprietary chip. "It's getting a lot of interest at retail," says Victor Tsao, president of Linksys. "With [802.11g], we'll provide better performance with a spec that will be accepted by the entire industry in a couple of months."

There doesn't appear to be much risk in going with Linksys pre-g products. If the IEEE makes any changes to the specification before its ratification, Linksys says it will offer a free firmware upgrade on the Web site. Even better, pre-g gear will cost just a bit more than 802.11b products. Adapters and access points will cost \$10 more (\$80 and \$140, respectively), and the wireless router will cost \$20 more (\$150).

With today's announcement of the AP-2500, Proxim opens up the wireless public access market to small, independent venues such as mom-and-pop coffeehouses, car dealerships and the like. Before now, setting up a hot spot required purchasing what's called a universal services gateway from Nomadics.

Built to handle large hot spots, these pricey, enterprise devices handle all the back-end tasks for accessing the Web from a public place; they reconfigure your IP address and redirect your browser to a Web page that lets you pay for service.

The big news is that Proxim has built a universal services gateway (with help from partner Nomadics) right into the AP-2500, so venue owners simply can plug in the gateway, select some settings, and offer service. Some neat features include dynamic address translation (DAT). Rather than users struggling with network names or Service Set Identification numbers, DAT simply maps the notebook to the hot spot's access point without actually changing any IP settings. Also, the software lets service providers offer end users the ability to select the speed of their connection on the fly via a drop-down menu.

Proxim also is pitching the device as an upgrade to corporate customers who want to offer secure visitor access. The AP-2500 lets network executives offer Web access to visitors while preventing them from accessing the company's wireless LAN. Available next month, the AP-2500 will be priced at \$1,100, just a bit more than Proxim's AP-2000, making it a no-brainer for any small to midsized public access application.

Kistner is managing editor of Net. Worker. She can be reached at tkistner@nww.com.

# Venture capital funds lead to wireless LAN gold rush

■ BY JOHN COX

Almost every month, it seems a new wireless LAN technology surfaces, promising to change networking forever. A number of technologies, many just now emerging in early product releases, hold great promise for deploying wireless LANs.

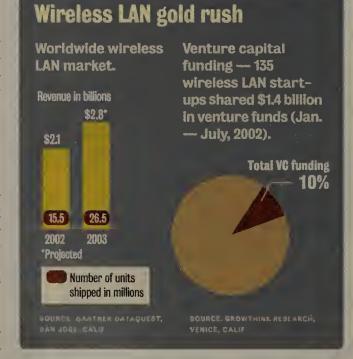
The still-evolving chip, radio and antenna technologies have drawn lots of venture funding, with the investors and a host of new companies searching for the next big thing in wireless LANs. The intellectual ferment and the product churn pose some special issues for network executives trying to plan wireless LAN investments.

According to Growthink Research, 135 privately held wireless companies raised nearly \$1.4 billion in venture capital in the first half of 2002.

The firm estimates that one in every 10 venture capital dollars spent through June went into the wireless market.

At the fall Comdex show this week in Las Vegas, some of these product trends are on display. Among them:

- The first demonstrations of 802.11g frequency as the widely used 802.11b nets, but boost the data rate from 11M to 54M
- A new product from MeshNetworks that expands wireless LAN ranges by letting client adapter cards hop through a series of other client adapters to reach a wireless access point (see story, page 21).
- A number of dual-band wireless LAN client cards and access points, which use silicon that can connect to 802.11b (or in



future 802.11g) nets or to 802.11a nets, in the 5-GHz band, at 54M bit/sec.

#### Longer range

Radio physics means that for a given power output, performance drops as the distance between access points and wireless LANs, which use the same 2.4-GHz adapter cards increase. The Federal Communications Commission restricts the power output of wireless LAN products. That means that under ideal conditions, 802.11b has a range of roughly 300 feet, 802.11b about one-third of that. Actual throughput for 802.11b can drop from 5M to 7M bit/sec to one-half, one-third or less, depending on distance and the materials between the client and the access point. A similar drop happens with 802.11a.

New antenna designs and silicon-based

antennas are creating range boosts. Another technology is Mesh-Networks' software and routing algorithms that turn any 802.11 radio into a repeater-router. That means that a PDA with a wireless LAN card can hop to a laptop with a wireless LAN card, and to other clients to reach an access point that connects to a corporate LAN or a provider back-haul network.

Users today can choose from 11M bit/sec 802.11b wireless LANs or the 54M bit/sec 802.11a wireless LANs. But sooner than most observers expected, 802.11g will arrive. The standard has been a controversial attempt to boost data rates in the 2.4-GHz band through competing modulation schemes. In the end, the IEEE 802.11g task group has opted

to use the same modulation scheme for 802.11g as used for 802.11a, but is allowing another, championed by Texas Instruments, as an option.

Essentially, 802.11g boosters say, the new wireless LAN standard will give you the throughput of 802.11a but the longer distance of 802.11b. One drawback: 802.11g, like 802.11b, will have only three nonoverlapping channels, while 802.11a has eight. That creates an automatic limit on how many users can be on one access point, and how many access points can be concentrated in a given area.

## Smarter

A key advance for wireless LANs is the introduction of higher-layer switching features. By adding Layer 3 and Layer 4 switching, sometimes to access points, but more often to separate gateway devices, network managers will be able to see and control wireless traffic as never before.

The first products, from such companies as Bluesocket, are being promoted as security gateways, adding a range of security features that correct a number of long-standing 802.11 security flaws, the weakness of the Wired Equivalent Privacy protocol.

But all these vendors have made it clear that is just the first step. They're also adding bandwidth management and traffic prioritization features that will let the wireless LAN give precedence to certain applications. The goal is to create a wireless LAN that can be managed centrally via policies and user profiles.

A new start-up, Vivato, is introducing phased array antennas into what it terms a wireless switch: letting the device focus a tight radio beam to each client. Vivato says the effect will increase ranges to .62 to 1.2 miles indoors, and ensures each client device optimum throughput. Vivato won't release product details until early 2003.

#### Hybridization

Besides the 802.11a/b combination adapter cards, there are more adapters that put 802.11b on the same card with (General Packet Radio Service/GSM, for example) or even Bluetooth.

Mobilian is shipping samples of its new chipset, which isolates the 802.11b and Bluetooth signals from each other to minimize interference in the 2.4-GHz radio band. Sometime next year, a laptop with a Mobilian chipset could connect to the corporate wireless LAN over 802.11b while using Bluetooth to send files to a Bluetoothequipped printer or handheld computer.

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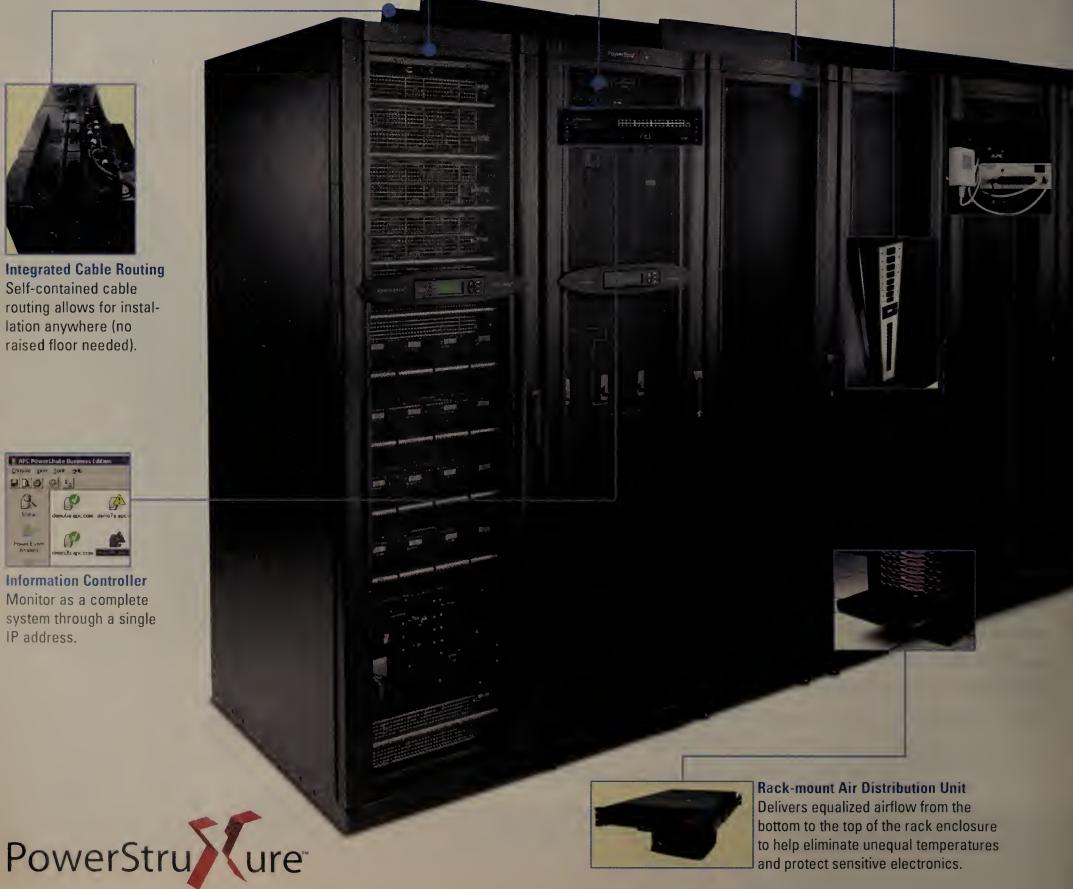
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The Power of Performance

# NETWORK MANAGEMENT DIRECTORIES

# IT executives weather downturn

Three IT professionals share ideas about managing technology priorities in a tight economy.

#### **BY ANN BEDNARZ**

BOSTON — IT staff need to communicate better. Infrastructure expenditures are really tough to justify. The recession has changed IT priorities.

These are sentiments that three senior IT executives agreed on at a roundtable that Forrester Research hosted earlier this month. One thing they didn't agree on is the importance of Web services.

Robert Carter, executive vice president and CIO at FedEx in Memphis, Tenn., said Web services already play an important role at the package delivery company. Almost all transactions that customers conduct with FedEx are electronic, and a

**■ EEye Digital Security** has an-

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team of people are working on Web services projects at the delivery company, Carter told the audience of about 600 attendees.

Meanwhile, Robert McCormack, senior vice president and ClO at Aramark Uniform and Career Apparel Group in Burbank, Calif., said Web services some day will be important, but now it's not a big issue. Aramark is working with XML using BEA Systems products, and McCormack finds that challenging enough. Just trying to get two vendors to agree on what XML is can be a big chore: "It's tough and ugly," he said." I tell you, it's two people reading out of different books."

General Motors falls somewhere in between the two companies. Tony Scott, CTO at the Detroit automaker, said Web services technology already is important to some divisions, such as GM's financial services businesses. "But it will probably be a long time before it gets into the factory

See Execs, page 36



**L** Devote a small percentage of your IT budget to exploiting

current technologies further. This forces people to think about how the company can use products and services that it has already bought. 77

**Tony Scott** CTO, General Motors

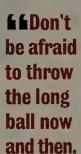


filf you can't count it, it doesn't exist. Be vigilant about justifying each project under-

taken. At Aramark, if a project can't be rationalized in hard dollars, it doesn't happen. 77

Robert McCormack

Senior vice president and CIO, Aramark Uniform and Career Apparel





A few risky projects keeps everybody on their toes, including the competition. 77

**Robert Carter** 

Executive vice president and CIO, FedEx

# Macromedia unveils Web content editor

#### **■ BY CAROLYN DUFFY MARSAN**

SAN FRANCISCO — Macromedia is expected to roll out a Web publishing tool next month that makes it easier for developers to offload the refreshing and editing of Web pages to nontechnical professionals across a corporation.

Called Macromedia Contribute, the new software package includes administrative controls that Web site developers can use to delegate authority to make changes to specific types of Web content. Authorized end users get a desktop application that lets them update and publish content on the Web pages via an interface that looks like a Web browser.

"Our end goal is to make Web sites more efficient to update," says Erik Larson, senior product manager for Contribute. "We're trying to make Web content live and fresh, more valuable and more up-to-date."

For U.S. government Web sites, Contribute lets Web developers enforce accessibility requirements of the federal Section 508 rules through its administrative console. These rules require Web site developers to provide alternate text for images and tables so screen readers can explain the content to visually impaired end users.

With Contribute, Macromedia is attempting to attract a new audience — general business users — to its customer base of professional Web designers and developers. Currently, Macromedia has 2.5 million customers who spend more than 20 hours per week building Web pages. Macromedia's research finds that its customers spend between 15% and 55% of their time making simple Web content changes that can be offloaded with Contribute.

That's the experience of Mary Norbury-Glaser, a LAN administrator and Web designer for the Barbara Davis Center for

Childhood Diabetes at the University of Colorado Health Sciences Center in Denver. Norbury-Glaser says she spends about 25% of her time making simple edits to the center's Web site. The site has more than 500 pages of content for the center's patients and their families, and it gets more than 3,000 hits per month.

"My time is split between software and hardware support and managing the Web site," Norbury-Glaser says. "Every time somebody has to change one page, one word or one sentence, I have to be involved."

Norbury-Glaser has tested Contribute since August and found it self-explanatory.

"This product will really facilitate [the clinical staff's] ability to edit Web pages without needing too much administrative help from me," she says. "As the administ trator, I can prevent users from mucking with too much of the content but the

See Macromedia, page 35

Symantec has announced a security alerting service called DeepSight, through which network managers can receive e-mail or fax alerts about newly discovery vulnerabilities or viruses. The service, which requires managers to register their internal systems over the Web, organization's applications and equipment to provide the most relevant information because an average of 60 new vulnerabilities are discovered every week. DeepSight, which starts at \$5,000 per year, also offers an online workflow process to keep track of remediation requirements. www.symantec.com

# Ariba broadens lineup of e-procurement software

#### **BY ANN BEDNARZ**

E-procurement pioneer Ariba last week unveiled a new module and a handful of upgrades to its software lineup, all aimed at making it easier for companies to get control of their spending.

The vendor has worked to broaden its software portfolio and widen its emphasis from indirect procurement to include sourcing tools for identifying and contracting suppliers. The suite is designed to help companies change the way they acquire goods and services, and trim expenses through smarter purchasing — what Ariba calls "spend management."

Ariba's software works with a company's enterprise resource planning (ERP), supply chain management (SCM) and CRM applications. It aggregates and consolidates purchasing information, including requests for quotes, contracts and invoices, to allow organizations to better see what they spend. The software also includes collaborative tools to manage the process.

New to its lineup of sourcing and procurement software is Ariba Category Management. Developed with Ariba customer ExTime to buy

AMR Research found that

of companies that don't have procurement and sourcing applications plan to implement them in the next 12 months; spending intentions are higher for this area than for any other enterprise application.

> Note: 509 U.S. companies surveyed.

xonMobil, the Category Management application can integrate SCM and CRM applications.

Ariba built hooks to the application features, which are required to execute project activities into the software. For example, if a manager needs to approve a contract, the Category Management application can send an alert and include a hot-link to the part of the application that lets the manager give the approval.

The new module also includes templates that employees can use for common tasks such as identifying suppliers, creating a short list of candidates and assembling a team of purchasing representatives.

By better coordinating people and tasks, Ariba hopes to trim weeks or even months off the process of running a new sourcing event, says Martin Boyd, director of product marketing at Ariba.

ExxonMobil is conducting a trial of the Category Management application, which is slated to be available next quarter.

In addition to the new Category Management module, upgrades of Ariba's key modules include Enterprise Sourcing 4.0, Buyer 8.0, Analysis 2.0 and Workforce 5.0. The new version of Analysis includes 55 reporting templates that can help identify savings opportunities, such as when a company is paying different prices for the same goods for different parts of the organization.

Ariba unveiled its retooled product suite at a customer event in New York. Meanwhile, the company continues to struggle financially. Ariba reported a smaller fourth-quarter loss than it did last year — but its revenue also shrank. Ariba posted a net loss of \$142.5 million, compared with a net loss of \$224.3 million a year ago. Revenue fell to \$58.2 million from \$62.6 million in the same time period.

On the positive side, the spend management pitch so far is resonating with users who are keen on implementing technology to help control spending, says Tim Minahan, vice president of supply chain research at the Aberdeen Group.

"Are they out of the woods yet? No. No supply chain vendor is," he says. "But they are moving in the right direction," he adds.



## **Execs**

continued from page 35

environment" where electronic data interchange services are entrenched, Scott said.

All three participants agreed the recession has caused their companies to alter their IT priorities.

At GM, Scott has focused on consolidating systems to remove excess costs. "We had way too much diversity in terms of the systems that we were running," he said. GM went from supporting four database vendors to one. All together, GM has cut in half the thousands of systems it operates, Scott said.

"Starting in '96, when we really started tracking it, we had 7,000 business-critical systems that we monitored and managed at a corporate level. We're at 3,500 or so today. That's really helped us take a lot of cost out," Scott said.

At Aramark, the IT group has learned to put more emphasis on business analysis than on technology, McCormack said. The company has recast the IT group in more of a services role. There must be a sound business case with hard-dollar cost justifications — and a business sponsor — for each project, he said.

"If there is no business sponsor, we're not doing it," McCormack said. This cultural shift has paid huge dividends "because it has allowed us, during a very tough time, to find those areas where we can make a difference in the organization," he said.

Things are a bit different at FedEx, which is willing to take more risks with technology. "Overfocus on [return on investment] is a little overhyped. I don't think true innovation happens unless you're occasionally looking to break out of a pure ROI model," Carter said.

#### Infrastructure roadblock

Carter, McCormack and Scott agreed that infrastructure purchases are essential — but tough to justify to non-IT executives.

"Educating the business on infrastructure has been the hardest part," Scott said. His tactic is to correlate infrastructure investments to key business objectives, to illustrate that delivering new services requires keeping the infrastructure healthy.

"You've got to convince the business that it's important to invest, even though they don't really understand it and even though it's quite expensive," Carter added.

The panelists also were in agreement that IT people need better communication skills.

Program-management and project-management skills in particular need attention at GM, Scott said. GM holds a "corrective action" meeting every two weeks to discuss projects that are in trouble — either not on time, not on budget or not delivering the expected capabilities. Bad program or project management is consistently a cause, Scott said. "People just didn't have the skills to manage something at the breadth of a GM," he said.

For its part, FedEx has a "trusted partners" program to train IT staff to better communicate with business partners, Carter said.

At Aramark, the shift to a services-based model for IT has led Mc-Cormack to be proactive about finding departments that are under pressure to perform and could use some IT assistance.

"What I find myself doing a lot is going around and sniffing underneath senior management's doors, smelling for fear. Because every time I smell that, there's an opportunity for the IT group to come in and play a role and help," McCormack said.

Looking to the future, Aramark's McCormack said one of the most important projects for next year is rolling out wireless handheld devices to its 3,500 route drivers to improve customer service.

At FedEx, many of next year's projects are focused on making the company's Web site more useful to customers, Carter said. FedEx will unveil an inbound-package tracking service that lets customers enter their address to see if any packages are en route to them. "Things like that are continuing to stay at the top of our list," he said.

GM will shift its focus from systems to people, Scott said. The company has done a lot of work over the last couple of years to speed up its systems and connect all its business processes digitally. Now the goal will be to help people be more efficient, he said. GM will invest in collaboration software to improve communication. "Our greatest opportunity now is in assisting the human beings in our organization to collaborate and make decisions faster," Scott said.

data from multiple sources. It combines project management tools with data culled from Ariba modules and third-party ERP,

#### Macromedia

continued from page 35

can edit pages or parts of pages as needed."

A Dreamweaver user, Norbury-Glaser plans to purchase a halfdozen copies of Contribute this fall and start testing the product among the center's department heads. She didn't consider a full-

# **66** Our end goal is to make Web sites more efficient to update. ""

#### Erik Larson

Senior product manager, Macromedia

fledged content management product because "it's too expensive and we didn't want to spend that much time training people," she says.

With introductory pricing of \$100, Contribute is a low-cost alternative to Web content management tools such as those from Vignette or Interwoven, which offer significantly more features including workflow and personalization but at much higher prices.

This is really a productivity tool for Web developers," says Rob Lancaster, senior analyst at The Yankee Group. He says the largest, customer-facing Web sites might need full-fledged content management systems, but Contribute is ideal for workgroups and intranets.

"It's a pretty innovative product," Lancaster adds.

Contribute works with any HTML Web site, although it has special integration with the templates used in Web sites designed with Macromedia's Dreamweaver software. Contribute also features strong integration with Microsoft Office to let content from Word or Excel be easily formatted into HTML.

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# Waveset shakes up identity-management offerings

BY ELLEN MESSMER

AUSTIN, TEXAS — Waveset Technologies is breaking up its identity-management

software suite into two separately available components and adding a new product to its line in an effort to cater to customers looking for a simpler way to secure

their networks.

The suite, called Lighthouse, is being split into separate components for basic password management and more complex role-based provisioning and access control.

The new product, Identity Broker, is intended to ensure that any personal data, such as address or billing information, can be transferred automatically between Waveset's Provisioning Manager application and popular CRM applications.

Among those intrigued by Identity Broker is payroll benefits and administration company ProBusiness Services, which has used Lighthouse to manage provisioning for 1,200 employees. Pro-Business wanted Waveset to add a way for Lighthouse to automatically share information with internal CRM systems to eliminate rekeying of a user's personal data.

The shift in strategy from marketing one larger identity-management suite to software components comes as Waveset struggles to point its sail in the right direction based on the prevailing wind of customer demand.

# Taking on a new light

Waveset has broken up its Lighthouse identity-management suite into two components and released a new product.

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#### **Provisioning Manager:**

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#### **Identity Broker:**

Not yet priced, this new software will ensure personal information is automatically entered into business applications from its provisioning application.

"We found some of our customers just wanted to start with password management and weren't ready for full-scale provisioning," says Mark McClain, president of

Provisioning software, which typically costs at least \$100,000, lets a security manager enforce centralized authorization and revocation controls over an organization's network and applications resources through a workflow-approval process. Waveset competitors include BMC Software, Business Layers and Access360.

By "componentizing" Lighthouse, Waveset will find itself competing more directly with vendors such as Courion that offer less-expensive software just for centralizing passwords, password self-service or enforcing password rules.

Waveset Password Manager and Provisioning Manager software will be available for HP-UX 10.X, Solaris and Windows NT 4.0/2000.

Waveset: www.waveset.com



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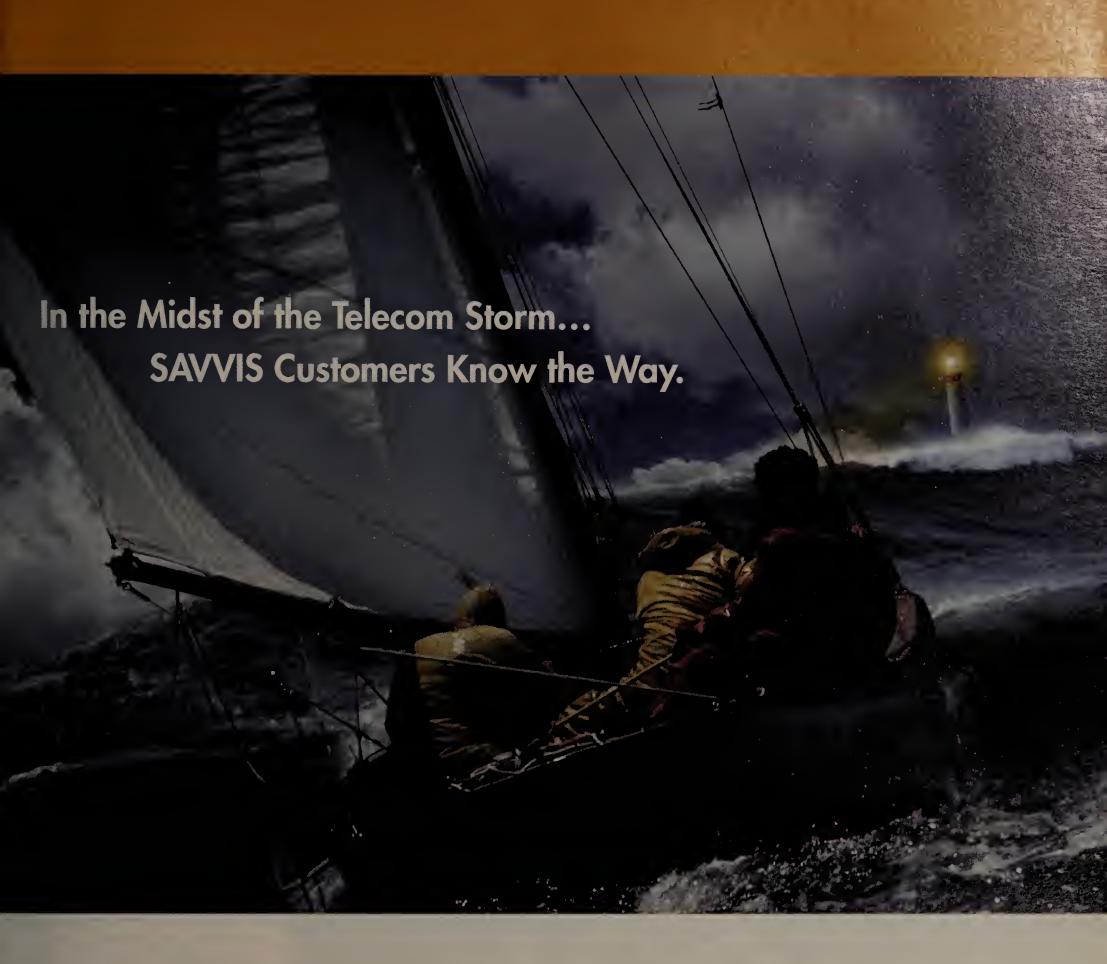
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Scott Bradner



# **A Panamanian platypus**

n late October the government of Panama, prodded by Cable & Wireless Panama, issued a regulation requiring all Panamanian ISPs to block all Internet traffic using any one of 24 User Datagram Protocol ports on the border router connecting the ISPs to any others. The stated aim of the regulation is to block the use of IP telephony to bypass C&W's monopoly on international phone calls.

The regulation points out that people using IP telephony do harm to Panama by

not paying taxes on international phone calls. This regulation could be seen as a valiant attempt to uphold an exclusivity contract that Panama signed with C&W or as a vain attempt to hold back the inevitable.

This regulation (www.nwfusion.com, DocFinder: 3127) is noteworthy because the Panamanian regulator so clearly says what its aims are and that the block was at the request of the incumbent voice carrier. But Panama is far from alone in trying to regulate IP telephony; a couple dozen other countries do the same. U.S. IP telephony folk should not feel too smug, as the Federal Communications Commission has said that it believes it has the authority to regulate IP telephony but has not yet made the decision to do so.

A basic question comes to mind is why should telephony be regulated at all, even non-IP telephony? Part of the reason is based in the historical fact that most telecom services have been supplied by monopolies at some point, but my guess is that the most important continuing reason is that telecom services are highly taxed and regulators want to preserve the revenue stream.

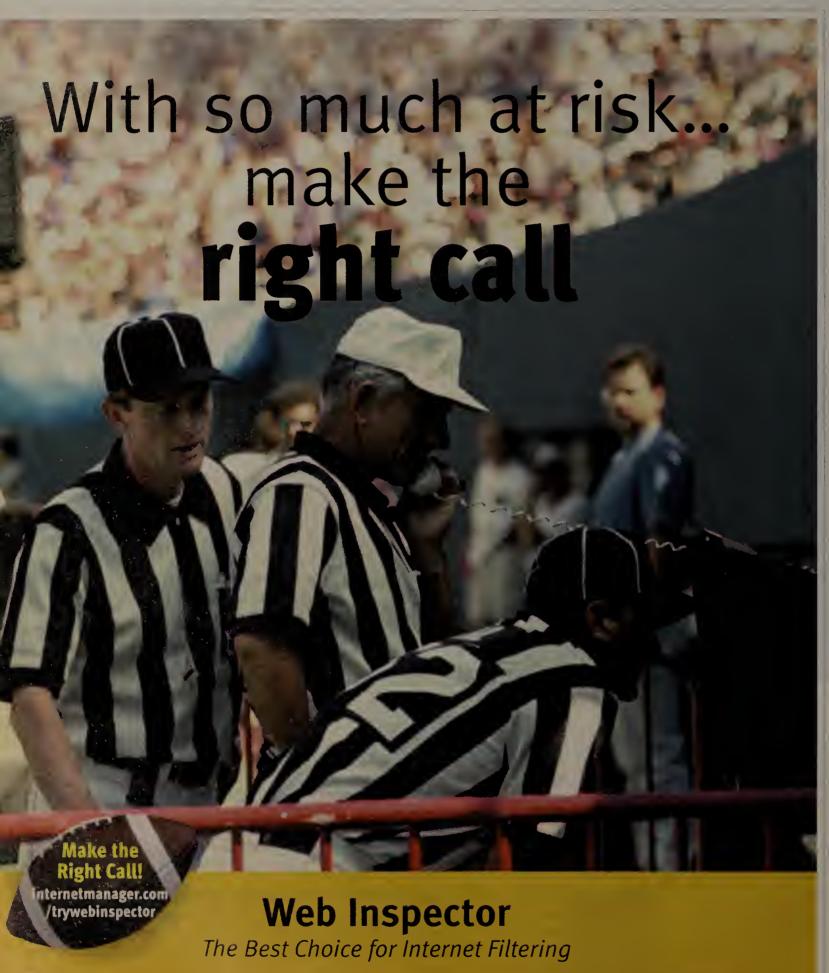
This reason will not go away soon and has meant that in some countries IP telephony providers already have to pay some of the same taxes as traditional carriers. In the U.S. you do not need a license to put up a Web site, even if that site offers to complete IP telephony calls. There are quite a few people who think this should not be the case.

The path that Panama has taken in its attempt to ban IP telephony is particularly troubling. The most important factor in the success of the Internet has been the ability for individuals to develop new applications. This ability is enabled by the basic Internet architecture, which transparently carries information over the Internet from one computer to another. This transparency has been hurt, and thus innovation has been hurt, by the insertion of firewalls and network address translators into the 'Net (see RFC 2775 for more details at DocFinder: 3128). Government-mandated blockages in the 'Net will further exacerbate the situation, but will not be that successful in controlling the targeted activity because IP telephony servers can be reconfigured to use different ports.

Syracuse University Associate Professor Lee McKnight likened IP telephony to a platypus (DocFinder: 3129): It might quack like a telephony duck but it is a far more complex beast. Panama will learn that some day; I just hope that other regulators, like the FCC, do not see a telephony duck when they think about IP telephony and decide to make pressed duck.

Disclaimer: Harvard quacks a lot but is far more complex (or is that strange?) than a platypus. But the above quacking is mine.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.



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# **Sprint touts net simplicity over MPLS**

But analysts say MPLS is likely to play a key role in carrier networks, meaning a possible risk for Sprint.

#### **BY MICHAEL MARTIN**

Multi-protocol Label Switching has gotten a lot of attention from equipment vendors, carriers and the technology trade press. And that attention has been largely positive, with the exception of one notable source: Sprint.

Sprint officials insist their company is neither officially pro- nor anti-MPLS, but they say adding MPLS to Sprint's IP backbone would create unnecessary complexity.

While industry analysts say MPLS might not be necessary for pure IP networks, the

technology could be useful as a transition from connection-oriented frame and ATM services to connectionless IP services. And if Sprint doesn't at least look into implementing MPLS in the future, the carrier could fall behind competitors.

"No national long-distance carrier has any option but to make a commitment to MPLS," says Thomas Nolle, president of consultancy CIMI and a Network World columnist.

MPLS is an IETF standard that is designed to attach labels to traffic flows. The thinking behind MPLS is that it can be used to prioritize traffic and avoid network congestion or failures. Carriers such as AT&T, WorldCom and Cable & Wireless already have implemented MPLS in some form.

But Sprint insists that MPLS only adds

unnecessary complexity to IP networks.

At this fall's NetWorld+Interop show in Atlanta, Barry Tishgart, Sprint's director of dedicated data services, described MPLS as a "solution looking for a problem."

The reason Sprint doesn't need MPLS is that the provider has overprovisioned its OC-192 SprintLink IP backbone network and doesn't hit more than 40% capacity on either of its two, physically diverse backbone paths, says Randy Ritter, vice president of product/portfolio management. Other carriers are deploying MPLS, Ritter says, to manage congestion on their networks. Sprint doesn't need MPLS, because there is no congestion.

"We feel like we've already deployed the network other carriers are moving toward,"

Sprint does some quality-of-service engineering for its IP customers. The provider uses Differentiated Services to establish up to five traffic queues between customer premises routers and Sprint points of presence in major metropolitan areas. But once the traffic hits the SprintLink backbone, it's all treated equally and routed at Layer 3.

"We believe we can handle the requirements customers are placing on us by managing from our edge router to the customer premises," says Fred Harris, Sprint's vice president of research, architecture and design. "The idea is to push the intelligence to the edge of the network to keep the core of the network as simple as possible. The core of the network is what needs to scale."

Steven Taylor, president of consultancy

See Sprint, page 44

Sprint last week announced a managed e-mail filtering service called Sprint E-mail Protection. The service filters out viruses, malicious code, spam, denial-of-service attacks and mail bombs. Customers don't have to deploy specific gear or software at their sites, but redirect their e-mail records to Sprint's network. Sprint has deployed software from Trend Micro and Sophos at its Internet data centers that filter all e-mail traffic before it hits a corporate user's network. Sprint would not give more pricing information. www.sprint.com

■ Global telecom revenue is growing at 6% per year and will rise from around \$1 trillion this year to \$1.3 trillion in 2007, according to a report by Pyramid Research. Growth rates will differ widely from region to region and between different countries in each region, according to Pyramid. Revenue in emerging markets is growing three times faster than in developed markets — 12% compared with 4% and vendors need to have a focused strategy for those high-growth markets, particularly China, India and Russia, Pyramid said. In 2007, Asia-Pacific will be the biggest market with 35% of telecom revenue, ahead of North America's 30% and Western Europe's 19%.

# Hosting market remains volatile

New report from Giga says consolidation likely to continue.

#### **BY JENNIFER MEARS**

Internet hosting remains important to corporate IT, but the market continues to be shaky and customers will have to stay vigilant through 2003 as they negotiate contracts, analysts say.

A sluggish economy and a slowdown in Internet-related projects have stymied the hosting sector for some time. A new report by Giga Information Group says that instability will continue at least through early next year. In the report, analyst Bill Martorelli says consolidation in the market will continue unabated as service providers are rocked by the tough economic environment.

Intel Online Services earlier this year announced it was winding down its hosting business because of a poor outlook for the market. Managed infrastructure provider Opsware, formerly Loudcloud, also announced the sale of its hosting efforts to Electronic Data Systems (EDS). And last week, Digex said it is seeking "strategic alternatives," including a possible sale of the company.

That puts big, stable providers such as IBM and EDS in a good position, Martorelli says. Other providers such as AT&T and NTT/Verio are also playing up their stability to attract large companies.

The shaky market is of little surprise to customers, who have been dealing with service provider volatility for more than a

"I think most companies, regardless of who they're with, are looking around because of the uncertainty in the hosting environment. It's just not a given that they're going to continue doing what they're doing now in the future," says a

director of e-business strategy at a large capital-goods manufacturer, who asked not to be named.

The company has been hosting with Digex for two years, but its contract comes due in April, giving it the opportunity to consider other options.

"We are moving the viability of the [hosting] company up ... in our selection

See Hosting, page 44

alternatives, including a

possible sale.

# **Hosting shakeout**

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Recents shift in the hosting landscape include:

of workforce.

June 18 June 21 Loudcloud announces it is selling its services business Digex board ousts Intel Online to EDS, will change its name to Opsware and focus CEO Mark Shull. Services on selling automated management software. announces "When we started Loudcloud, we said we plans to wind downhosting wanted to be the EDS of the Internet. Now business. EDS will be the EDS of the Internet." Marc Andreessen Aug. 6 Nov. 11 July 22 Oct. 29 Digex announces IBM expands NTT/Verio announces Digex board announces it is cutting 20% hosting service to modular PowerPlatform it is seeking strategic

hosting in an effort to

woo larger customers.

44. NetworkWorld 11 18 02 Service Providers www.nwfusion.com

# EYE ON THE CARRIERS Johna Till Johnson



s I've looked over my past several columns, I've discovered an underlying theme: the importance of human interaction to IT success. Most projects fail not for technical reasons, but for reasons related to human beings (people, process) — and conversely, most succeed for the same reasons.

Two recent examples brought the idea home. While researching an upcoming report on Web services, I spoke with an IT director who was overseeing the rollout of a \$55 million project with the opportunity to dramatically transform his organiza-

# An engineering approach to human interaction

tion's \$2 billion business. When I asked him what his biggest challenge had been, he answered promptly: "Initially failing to get enough customer buy-in."

In other words, he'd underestimated the human aspect. Fortunately, he and his team caught and fixed the problem early—and the project is well on its way to success. But without prompt attention, the issue could have been a career-killer.

On the negative side, I spoke with a man who'd been promoted recently to head up IT at his company. When I asked him how he liked the job, he hesitated — then admitted he hated it. "I have to deal with people all day," he said.

Here's the scary part: I knew exactly what he meant. Engineering is clean, crisp, straightforward. It lets you focus on the essentials, not that messy, human stuff. Computer code doesn't sulk because you're spending more time with another

program. And a telephone company circuit might behave like it's possessed, but you can be sure it's not politicking to get promoted to department head.

Many folks assume that because I'm a woman, I'm "naturally" better at human interaction, thanks to the benign influence of that X chromosome. (Stereotypes are funny things.) Actually, to the extent that I'm good at it, it's because of hard work. A few years ago I got frustrated because, well, I kept having to deal with people all day. And they kept behaving irrationally (as humans tend to). After the 5,000th time that I'd impatiently explained the facts — and been rebuffed by an emotional response — I finally wised up and hired an executive coach to explain what was happening.

It was the best thing I could have done. Slowly, patiently, she brought me to what I call a "systems engineering" understanding of human interaction. People might behave in irrational ways, but they're also predictable once you understand what makes them tick. And as with any other engineering project, once you understand the properties of your components, you can build effective systems from them.

So here's the point: Mastering human interactions and issues is an essential component for success (of your project, your organization and, ultimately, your self). And as an engineer, you have a natural advantage — you can take a systemsengineering approach to understanding your fellow humans.

If you'd like some help along the way, check out the International Coaching Federation at www.coachfederation.org.

Johnson is president and chief research officer at Nemertes Research, a technology research firm. She can be reached at johna@nemertes.com.

## **Sprint**

continued from page 43

Distributed Networking Associates, publisher/editor in chief of Webtorials.com and a *Network World* columnist, says customers shouldn't really care about the technology behind their VPN service

"It shouldn't matter as long as you're getting the service-level agreement you need," he says.

And Nolle agrees that MPLS doesn't add anything to pure IP networks. But, Nolle says, frame and ATM are becoming too expensive for carriers to deploy profitably, and by 2005 he expects frame and ATM to become unprofitable.

"There's no question in my mind that traditional voice, frame and ATM services have no forward market potential," he says.

Carriers won't be willing to toss away expensive frame and ATM equipment, which can take up to 20 years to write down, he says. So they'll need a way to map frame and ATM from the carrier network edges onto a more efficient IP backbone. Nolle says MPLS could be the bridge carriers use between connection-oriented frame and ATM equipment and connectionless IP backbones.

But MPLS, as it exists, isn't all that

# **MPLS** primer

**Features of MPLS include:** 

- The use of labels to set up specific paths for specific traffic flows.
- Preset paths mean routers don't need to do as many look-ups, making traffic flow more efficient.
- Internet EngineeringTask Force standard supports
   IP, ATM and frame relay Layer 2 protocols.

useful, Nolle adds. There are too many implementations of MPLS on the market, some of which are useless, he says.

"It says a lot that the regional Bell operating companies are testing MPLS equipment from vendors who currently have no gear in the RBOC networks," he says. "What that tells me is that they don't have a lot of faith in the MPLS versions of their existing providers."

While Sprint doesn't need to rush to implement MPLS now, Nolle says that ultimately the carrier will have to begin integrating its IP and ATM/frame networks and that the technology most likely to enable that integration

# FCC plans 3G spectrum auction

**■ BY DENISE PAPPALARDO** 

WASHINGTON, D.C. — The Federal Communications Commission is planning to auction more spectrum to aid in the rollout of 3G wireless services.

Wireless service providers, especially in populated metropolitan areas, need additional spectrum to support the higher speeds that 3G services promise. The FCC says it has allocated 90 MHz of wireless spectrum in the 1710-MHz to 1755-MHz and the 2110-MHz to 2155-MHz bands.

True 3G wireless services offer users data transmission speeds at 128K bit/sec to 384K bit/sec for mobile devices and up to 2M bit/sec for fixed-wireless devices. The fastest 2.5G services today support data transmission speeds between 40K bit/sec to 60K bit/sec.

The federal government and wireless cable service providers are using some bands the FCC will auction off. But the FCC says it plans to relocate those licensees. When those users will be relocated is a key question that must be answered before an auction, says Roger Entner, analyst at The Yankee Group.

The FCC says it will announce its auction rules next year with an eye toward conducting the auction in 2004.

"Like Yogi Berra said, 'It's like déjà vu all over again,'"Entner says, referring to the aftermath of the Nextwave reauction disaster, where several of the largest wireless service providers bid billions on spectrum the FCC actually

didn't have in hand.

After Nextwave file

After Nextwave filed for bankruptcy, the FCC "repossessed" its spectrum licenses because of nonpayment.

The FCC then auctioned off the licenses to carriers including Cingular Wireless, Verizon Wireless and T-Mobile, formerly VoiceStream, for \$16.7 billion. An appellate court nullified the auction in 2001. But these carriers just received a reprieve from the FCC in September for money due for these licenses even as the FCC tries to have the case heard by a higher court (ww.nwfusion.com, DocFinder: 3135).

To avoid the same mess, the "federal government should only auction spectrum when it is clean, in its hands," Entner says. It's possible that federal and cable spectrum owners will have until 2007 to move to new wireless bands. If that happens wireless service providers will bid far less for these licenses than if they were buying them without "squatters," he says.

However, industry experts say the FCC's announcement is a move in the right direction.

"We are very pleased to see the commission moving ahead with the allocation of additional spectrum," says Tom Wheeler, CEO of the Cellular Telecommunications & Internet Association.

Entner says some carriers are in need of more spectrum to roll out enhanced services in the near term, even those considered to be 2.5G. Cingular and AT&T Wireless require more spectrum in the most populated areas such as New York and Los Angeles, he says. Carriers such as Verizon Wireless and Sprint PCS typically have enough spectrum for 2.5G ser-

vices based on the wireless network technology 1xRTT. But to support full-blown 3G, all the carriers require additional spectrum to meet future demands, he says.

## Hosting

continued from page 43

process because it's becoming more and more important," the strategy planner says. "A few years ago we looked at functionality and price a little closer than the viability of a company. It was always there, but it carries more weight today."

He also says that while his company is considering bringing some hosting initiatives in-house, "all the reasons why you outsource are still there today."

While the market shakes out, customers still are signing contracts, most which are spurred by site migration, re-architecture, server consolidation, data center consolidation and business software continuity planning, according to Martorelli. Site

redundancy, business continuity and security also are driving businesses to hosting providers, he says.

Still, the market isn't growing as fast as it did during its heyday a few years ago. But once the economy improves, well-posi-

tioned hosting providers will benefit.

"In 2003 we're going to start to see some of the leading providers emerge from this mess," says Carrie Lewis, an analyst at The Yankee Group. "Who they're going to be is tough to say."

# The

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Things to consider

moving to a VPN:

Here are some tips from the

experts for users considering

• Realize that not all managed VPN

Use your application needs to find

Ensure you get some form of SLA.

Expect to save a ton of money by

Jump at a VPN service only

• Expect the SLAs on a cheaper

those of a more expensive

network-based offering.

Internet VPN service to match

because of the price.

IP VPN.

replacing a frame network with an

offerings are created equal.

the VPN that's best for you.

11/18/02

# Special Focus MANAGED IP VPNS: Dig beneath the covers.

# Managed IP VPNs present a dizzying variety

BY MICHAEL MARTIN

espite a slow economy, IP VPN services are expected to grow dramatically over the next few years. According to recent research from In-Stat/MDR, IP VPN service revenues should increase at an annual rate of 33% between 2001 and 2006.

Of 436 organizations with more than 1,000 employees interviewed by In-Stat/MDR, 90% are either deploying an IPVPN or plan to do so within the next two years.

With this explosion in VPN interest, what should users look for when hunting for a VPN vendor?

For Phillip Jones, general manager of IS for Utility Engineering, a power plant design firm in Minneapolis, reliability and bandwidth were important. Until a year ago, Utility Engineering operated a

10-drop frame relay network from WorldCom.

However, two problems arose with the frame relay network, according to Jones. The first was that all the branch offices, connected in a hub-and-spoke design to the company's headquarters, had to send data to that headquarters, which would have to push it out again to the other branches. This means that Utility Engineering wasn't using its WAN bandwidth very efficiently.

The second problem was that Utility Engineering began exceeding the bandwidth on its frame relay committed information rates (CIR). Most of the data consisted of bandwidth-intensive CAD files. Once the CIR was exceeded, transmissions were resent, further exacerbating the bottleneck.

"We found that boosting the CIR was going to cost us a lot more money," Jones says. "So we went to WorldCom and told them they needed to find us something else, and they came back with an IP VPN."

Utility Engineering's IPVPN relies on the same T-1 drops as its frame relay network. But now the company can use the full T-1 of

bandwidth at a cost slightly less than what it paid for the frame network.

The IP VPN is fully meshed, so sites can communicate directly with one another. Communications don't have to go through corporate headquarters.

And because all of the traffic runs over WorldCom's Tier 1 UUNET backbone, Utility Engineering can get solid service-level agreements (SLA), Jones says.

One feature Jones says all VPN users should look for is a managed Web interface to monitor their VPNs' performance. WorldCom's VPN Interactive Performance Monitoring system (VIPer) has been useful for checking SLA compliance, he says. VIPer lets users see daily, weekly and monthly statistics on their VPNs. Users also

get to view charts showing how their VPN performance compares to the SLAs.

Another feature that Jones likes is that the VPN is fully managed. WorldCom deals with any connection problems. In the past, when a frame relay line went down, Utility Engineering first had to figure out whether the local phone company or WorldCom was to blame and then hand the problem off to the appropriate party,

While Jones uses WorldCom's fully managed service for his permanent sites, he relies on T-1s from Global Crossing and VPN boxes that Utility Engineering to connect to job sites on which the company is working.

Jones says the reason is simple — cost.

"Global Crossing killed everyone on T-1 pricing and the [service] seems relatively stable," he says.

> The only problem Jones ran into during the VPN implementation process was coordinating new dial-up drops with the local phone companies. WorldCom needs the dial-up drops to allow the provider to manage the VPN. Each site required a dial-up line in addition to the existing T-1

> Perhaps the most important thing users looking for managed IP VPNs need to understand is that there are many products on the market, industry analysts say.

"There's no standard nomenclature out there when it comes to VPNs," says Zeus Kerravala, an analyst with The Yankee Group. "You have to dig deep to find out exactly what's being offered.

A managed, network-based IP VPN from the likes of AT&T is a lot different than a managed service from a company such as Vanguard that covers the management of the VPN customerpremise equipment.

Some of the various managed products include: pure Internetbased offerings that use routers managed by a provider to create IP Security (IPSec) tunnels between sites; network-based

VPNs running over a single provider's IP backbone, such as Phillips' WorldCom VPN; and offerings that use multiple ISPs, but have a provider monitoring the performance levels of the various ISPs and using the best alternative, such as Virtella's VPN offering.

"At this point it's tough to say which is better," says Steven Taylor, president of consultancy Distributed Networking Associates and a Network World columnist.

For a real-time application, such as stock trading, where even a minute of downtime can result in a large loss of money, a pure Internet IP VPN might not be what a user wants, experts say. But a network-based VPN traveling over a Tier 1 IP backbone might meet the same user's needs.

**▲** There's no standard nomenclature out there when it comes to **VPNs.** You have to dig deep to find out exactly what's being offered. ""

Zeus Kerravala

Analyst, The Yankee Group

On the other hand, for traffic that isn't mission-critical, a pure Internet VPN with minimum SLAs might be fine. "The Internet doesn't come with SLAs," Taylor says.

"But performance across the Internet can be surprisingly good. So a carrier could use that performance and create an SLA that would match it."

Rick Vasquez, network manager for Detroit Newspapers, which handles business operations for *The De*troit News and the Detroit Free Press, is considering moving 24 remote sites from a frame relay network to an IP VPN running over DSL. Vasquez's motivation is cost. He estimates the move would save his company between 50% and 66% of the \$100,000-plus it spends on its annual frame relay bill.

The VPN that Vasquez is examining is a software-based service from SBC Communications. The service relies on VPN software from IP Dynamics that lets businesses group workers or business partners into various secure work groups. End users communicate in a peer-to-peer manner using IPSec and Triple-DES.

Vasquez still is testing the SBC service. While he's attracted by the pricing, he says he has had some service issues.

One problem is that employees have been unable to access Microsoft Exchange over the VPN. Vasquez says a new version of the IP Dynamics software that SBC is testing should solve that problem.

Vasquez also has had connectivity problems with the VPN lines. He's not sure whether the problem lies in the VPN software or with the DSL.

While the information Detroit Newspapers sends over the VPN connections isn't particularly time-sensitive, the company can't afford to have the connections down on a regular basis, Vasquez says.

Given his experiences, Vasquez says users should test any new VPN services they're considering as thoroughly as possible.

Ultimately, Taylor says, the underlying WAN technology doesn't matter as much as the service levels a

"You need to get away from worrying about frame, IP or ATM, and concentrate on the service levels your applications require," he says. ■



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# Network equipment start-ups feel pinch

#### **BY CAROLYN DUFFY MARSAN**

Venture capital investments in network equipment start-ups slowed to a trickle during the third quarter, reaching the lowest level of early-stage investments recorded in seven years.

That was one key finding of a special analysis of the quarterly MoneyTree Survey compiled for *Network World* by PricewaterhouseCoopers, Venture Economics and the National Venture Capital Association.

Venture firms made only six first-round investments in network equipment start-

# Takes

**■ Cox Communications** last week awarded Nortel a three-year, \$65 million contract to provide optical transport and telephony switch gear. Cox plans to deploy Nortel's OPTera Metro 3100, 3400 and 3500 optical platforms to increase network capacity and expand its subscriber base. Cox also expects to deploy Nortel's DMS switches to accommodate more residential and commercial telephone subscribers. Last month, Nortel announced that Cox would deploy Nortel's optical Ethernet equipment - including Resilient Packet Ring technology — in San Diego to offer metropolitan services such as virtual LANs.

■ BigBand Networks, a provider of broadband multimedia routing systems for broadcast television, and Fujitsu last week announced that they have entered a nonexclusive agreement to integrate and jointly market their products. The two companies say they will package Big-**Broadband Multime** Service Router with Fujitsu's Flashwave 4500 optical transport platform as a unified broadband video transport system. This integration would let cable operators transport video programming between facilities over optical fiber via standard protocols such as Gigabit Ethernet and SONET, the companies say.

ups during the summer — the fewest since the fourth quarter of 1995, according to Tracy Lefteroff, global managing partner of the venture capital practice at PricewaterhouseCoopers.

Venture capitalists are skittish about investing in next-generation routers, switches and other network hardware components because potential carrier customers aren't buying new gear, experts say.

"Capital budgets have been cut back," Lefteroff says. "[Buyers] say that the first thing they need to do is implement everything they've purchased over the last 10 years. It's only when they see their technology falling behind that they'll upgrade to increase productivity. That cycle could take a couple of years."

Altogether, the third-quarter 2002 Money-Tree survey recorded 39 investments in network equipment start-ups that totaled \$341 million. That level of investment is about half the amount invested during the second quarter of 2002, when venture firms invested \$633 million in 57 network equipment start-ups.

Even more sobering is that the current

# Where the money went

These were the network equipment companies that received first-round financing in the third quarter.

Company	Location	Deal	Description
Active Reasoning	Palo Alto	\$4.67M	Operations management systems
Actona Technologies	Los Gatos, Calif.	\$6.99M	WAN storage products
Covaro Networks	Richardson, Texas	\$17.8M	Convergence platforms for carriers
Legra Systems	Lexington, Mass.	\$2M	Wireless LAN systems
OpSource	Santa Clara, Calif.	\$4M	Secure enterprise network platforms
Trillion Digital	Bessemer, Ala.	\$4M	Fixed wireless WAN connectivity

SOURCE: MONEYTREE SURVEY FROM PRICEWATERHOUSE COOPERS, VENTURE ECONOMICS, NATIONAL VENTURE CAPITAL ASSOCIATION

investment level is down more than 70% from the second quarter of 2000 — the peak of the Internet boom — when 80 network equipment start-ups received a total of \$1.2 billion.

The lack of venture funding makes it more difficult for entrepreneurs to find financing for innovative ideas in network hardware, experts say.

"The pace of innovation is a lot less variable than the financing cycle," says Bob Grady, managing director in venture capital with the Carlyle Group, a Washington,

D.C., investment firm. "There are a lot of good ideas out there. There are a lot of good companies out there."

The six early-stage network hardware start-ups that successfully raised funding last quarter received a total of \$39.4 million. The largest of these deals was \$17.8 million invested in Covaro Networks, a Richardson, Texas, provider of carrier-grade equipment for converged networks. The second largest was \$6.9 million invested in Actona Technologies, a Los Gatos, Calif.,

See Pinch, page 50

# Juniper deploys routers for Internet2

**■** BY JIM DUFFY

SUNNYVALE, CALIF — Juniper Networks last week announced a new deployment of its routers in the Internet2 research network at the same time an investment research firm cut its estimates for the company based on edge router trials under way at Verizon.

Buckingham Research Group cut its fiscal year 2002-2003 estimates for Juniper because of recent channel checks that indicate the company is unlikely to win sales from trialing its Unisphere Networks edge routers at Verizon. Buckingham said that Juniper valued the potential sale of the routers to Verizon at less than \$5 million, according to the Yahoo Finance site.

Verizon is testing Juniper's edge routers as part of an edge buildout valued between \$200 million and \$300 million, according to analysts, vendors and published reports. Redback Networks, the incumbent vendor, and Riverstone Networks also are believed to be trialing routers for that buildout (see www.nwfusion.com, DocFinder: 3138).

Verizon has declined to comment on the

trials. A Juniper spokeswoman says the company does not comment on analyst estimates.

In the bulletin, Buckingham said that the Juniper routers displayed "compatibility issues" during the trials.

Buckingham analyst Gina Sockolow said Juniper's routers have a proprietary ATM implementation that cannot "handshake" with other ATM switches and routers.

As a result, Buckingham cut Juniper's fiscal year 2002 revenue forecast from \$543 million to \$534 million and increased its loss-per-share estimate from 3 cents to 4 cents. Fiscal year 2003 estimates were shaved to \$530 million and a loss of 8 cents per share — both below the consensus of Wall Street opinion — from \$568 million and a loss of 4 cents.

Meanwhile, Juniper said additional M-series and T-series routers have been deployed in four Internet2 gigabit points of presence (GigaPoP). Internet2, which includes more than 200 U.S. universities working with industry and government, is developing applications and technologies for accelerating the creation of the next-generation Internet.

Juniper's routers have been installed in the Front Range GigaPoP in Colorado, the New York State Education Research Network, the Pacific Northwest GigaPop and the Texas GigaPoP:These GigaPoPs serve the university and research members in their respective regions and support high-definition television over IP,data mining, 3D visualization and telemicroscopy applications.

Internet2's Abilene, Texas, backbone network connects the GigaPoP regional network aggregation points. The Abilene network is being upgraded to OC-192.



Juniper's trialing its edge routers at Verzo

Get the background on the deal that earlier this brought Unisphere into the Juniper fold.

DocFinder: 3134

# Service provider taps Riverstone

BY JIM DUFFY

SACRAMENTO — Service provider Sure-West Communications has selected Riverstone Networks to supply routers for delivery of metropolitan Ethernet services across geographically separate networks.

SureWest's EtherMAN service for businesses and government offices throughout Sacramento provides tiered bandwidth, VPNs and virtual private LANs. SureWest, one of the largest independent operating companies (IOC) in the country, is deploying Riverstone's RS 38000, RS 8000, RS 3000 and RS 1000 routers throughout the metropolitan core to the access edge.

Neither Riverstone nor SureWest provided specifics on the number of routers deployed, the number of points of presence or the financial scope of the deal. The RS 38000s are in the metropolitan core, aggregating traffic from RS 8000s in smaller points of presence; the RS 3000s and RS 1000s are at the access edge feeding traffic to the RS 8000s.

SureWest serves 140,000 subscribers.

IOCs sprouted from the Communications Act of 1934, which sanctioned independent telephone companies to provide telephone service at competitive rates to those parts of the U.S.—chiefly, rural communities—that the former Bell System bypassed. Today, more than 1,300 IOCs connect the national network to the rural and remote areas.

But all IOCs exist within an environment characterized by a poor economy, falling access line counts and wireless substitution, according to Probe Research. Many of these carriers serve rural areas with as few as 500 lines. They therefore also have to contend with longer loop lengths and low density of households, which increases the cost of delivering service and upgrades.

Being in a rural area does not mean subscribers are deprived of cutting-edge telephony services. IOCs are at the forefront of new service rollouts as they are spurred by significant competitive threats from other providers, and the lack of regulatory restrictions imposed on regional Bell operating companies. The Federal Communications Commission lifted its ban on nondominant carriers bundling customer premises equipment and service, Probe says.

This is one reason equipment vendors have increasingly focused on developing and marketing products specifically for IOCs (see www.nwfusion.com, DocFinder: 3137). Another reason is that IOCs have access to a large federal fund. The Rural

#### A SureWest bet Configuration of Sacramento service provider's metro Ethernet service network. Aggregation Gigabit Ethernet Riverstone RS 38000 routers in Sure-West's metro core network aggregate Access 10/100 Ethernet SureWest's metro traffic from RS 8000s in smaller POPs. core network Subcribers (hundreds of buildings) Internet mm. MMML/ **RS 3000** RS 8000s MMV. MMML. The RS 3000s and RS 1000s are at the access edge, feeding traffic to the RS 8000s and provisioning service to SureWest subscribers.

Utilities Service (RUS) is the federal agency for rural infrastructure assistance in electricity, water and telecom. RUS funds let IOCs secure guaranteed loans from the federal government.

According to Riverstone, RUS last year accepted applications for \$15 million in grants, \$200 million in loans and \$110 million for grant/loan combinations.

Probe says that IOCs benefit from a lack of competition. Forty-two percent of rural carriers do not face any broadband rivals, the research firm says. Growth among IOCs is likely, Probe says, as 10 million RBOC lines are expected to be divested to independents in the next several years.

## Pinch

continued from page 49

provider of WAN storage systems.

Meanwhile, venture capitalists spent significantly more money shoring up their investments in more-developed network equipment start-ups. The survey reports seven investments that were fifth or later rounds of venture financing that totaled \$67.7 million.

The largest of these deals was \$34.5 million invested in Luxn, a Sunnyvale, Calif., maker of optical access network platforms for service providers. This was the seventh round of financing for Luxn, which was founded in 1998 and has raised more than \$150 million.

Another large later-round deal was \$20 million invested in Infinera, a Sunnyvale, Calif., maker of optical components. This was the sixth round of financing for Infinera, which was founded in 2001 and has raised \$90

These network equipment startups still are receiving venture financing because the IPO and acquisition markets are dormant. Venture capitalists have no exit strategy for these investments and must keep them alive until the conomy turns around

# **Bush adviser backs 'Net security**

**■ BY JIM DUFFY** 

The U.S. government should fund and test Internet Engineering Task Force developments and initiatives to improve the security of Internet communication, including extensions to the Border Gateway Protocol, according to a presidential adviser on Internet security.

Internet protocols such BGP and DNS can be targets of intentional malicious activity or sources of instability that compromise the security and reliability of the Internet, says Richard Clarke, special adviser to the president for cyberspace security. There have been recent instances of malicious activity — the Oct. 21 distributed denial-of-service attacks on 13 Internet root servers — and Clarke says BGP frequently "flops" massive routing tables between ISPs, creating pockets of instability.

"We're proposing that there be an increased role for the federal government in terms of funding research, in terms of being an early adopter when there are successful new things and in terms of

helping to create test beds," Clarke says."The U.S. government should be doing more, not in terms of regulating, mandating or dictating, but in terms of facilitating the work of people like the lETF."

But governmental funding of IETF work is tricky because the IETF and the Internet are worldwide organizations and entities, Clarke says. Ownership is therefore ambiguous, as is the source of research and development funding, he says.

"Issues of BGP secure BGP and secure DNS have been kicking around in the security group and the protocol groups in the IETF for a long time," he says. "But nothing much has happened, and that's in part because who owns the Internet? The world does, so that everyone owns it in common. No one feels responsible for funding this work."

Clarke says the U.S. government has been in discussion with Jeff Schiller, security area director for the IETF about funding and testing. Clarke says Schiller is receptive but sensitive to the possibility that the federal government would dominate the lETF's work,

Clarke says.

"We're not interested in dominating; we're not interested in regulating," Clarke says. "But we are interested in facilitating their work. What [Schiller] said is that they certainly could use assistance in funding R&D, funding test beds, that would make it possible for them to make decisions or [request for comment] conclusions more rapidly than they have been."

Under consideration is the creation of a "civilian DARPA" in the Homeland Security Department to solicit the participation of the private sector in Internet security and stability R&D, Clarke says. DARPA — the Defense Advanced Research Projects Agency, the R&D arm of the U.S. Department of Defense — funded early development of the Internet in the 1970s.

The government is discussing joint funding and research with the European National Security Agency, a department of the European Union, Clarke says.

"The real issue is getting somebody — the U.S. government is the logical candidate — to worry

about these underlying protocols and support the work of the experts," Clarke says. "Not impose our solutions, but first of all say to the expert community, 'We think there are problems here. Do you?"

Clarke says there are two kinds of problems with BGP: One is instability, which arises mostly from human error; the other is security.

"Right now, [BGP] doesn't use authentication or encryption," Clarke says. "That poses a potential vulnerability, which people have been aware of and talking about for years but no one has done anything to fix yet. So there are two problems. They're related, and we're interested in solutions that facilitate both of them."

Clarke feels these solutions can be bolted onto the existing BGF protocol rather than requiring the development of a new peering protocol for the Internet.

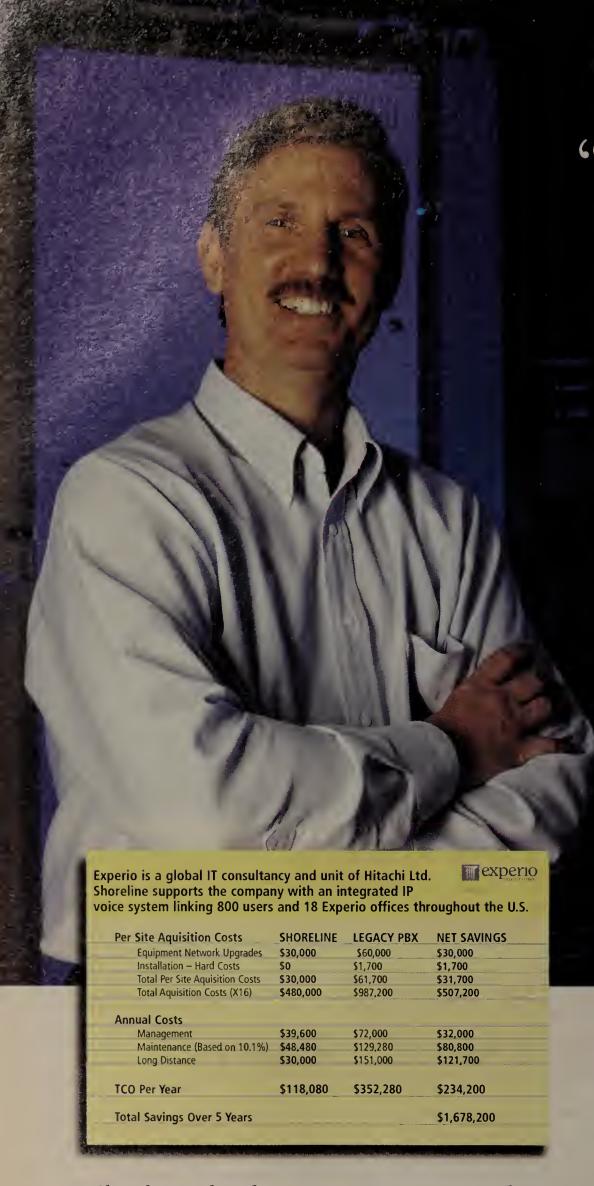
Clarke says the IETF is likely to require "a few million dollars" annually from the federal government to fund R&D of Internet security and stability initiatives. Test beds also would need to assimilate a large-scale system.



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Michael Shisko, IT Director, Experio Solutions

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# NetworkWerts

# Iechnolog

# Making sure net routing doesn't fail

#### **■ BY CHARLES GOLDBERG**

If a route processor fails, is there a network outage? Not necessarily. When the network device recovers from a failure with undetectable disruption, then the network has not failed, because as far as end users are concerned there was no outage and no downtime.

But even in cases when a route processor does fail, two new software features have been designed to maintain edge router integrity: stateful switchover (SSO) and nonstop forwarding (NSF).

Stateful switchover allows for a hotstandby processor to take control of the failed route processor while maintaining connectivity. SSO also assures that network management systems can manage a device with two route processors as one system and one manageable entity.

With SSO, both active and standby route processors maintain Layer 2 data-link connectivity information by checkpointing the minimal data required to maintain ATM, frame relay and Ethernet connections from the active route processor to the standby one. Maintaining the connection is imperative to minimize CPU utilization, reduce the amount of data loss dur-

# Got great ideas

■ *Network World* is looking for great ideas for future Tech Updates. If you have one and want to contribute it to a future issue, contact Features Editor Neal Weinberg (nweinberg@ nww.com). ing a switchover and quickly establish the standby processor in hot standby state.

Additionally, any method to create an SSO environment must be able to scale to tens of thousands of interfaces, because routers on the Internet keep connection information on tens of thousands of other routers to which they might need to connect. To accomplish this, the goal is to attempt to maintain only what is necessary and cannot be re-created across the route processors. Examples of states that are kept across the route processors are physical interface state, permanent virtual circuit state and command synchronization.

In a failure, SSO switches the system to the hot standby route processor. The failed one will attempt to reboot and operate as the new standby. This handoff happens without rebooting line cards; therefore without creating a link flap, which might cause connectivity protocols to be dropped.

Every step of the SSO process is monitored through SNMP, informing the network management team that there was a route processor failure. This is critical because customers won't call the network operation center to report a failure because their applications are never interrupted. The SNMP traps tell the network management systems the cause of the failure and if the failed route processor could reboot. If not, it needs to be replaced, which is done without taking the router out of service.

Nonstop forwarding ensures IP packets are forwarded continuously during the process.

It is not practical to attempt to maintain all the route table states across two route processors, because route tables can have 100.000 to 200.000 route entries. So, the

# Stateful switchover SSO lets a router remain functional when one of its processors fails. Active route processor updates standby processor with connectivity and management information. Route Route Processor 2 Standby Active route processor fails, and hot standby route processor takes control and continues to forward packets. 3 Failed route processor reboots and becomes new standby processor. New active route processor synchronizes information with new standby route processor. Route Route Active

Internet Engineering Task Force has proposed protocol restart extensions that enable nonstop forwarding for Border Gateway Protocol (BGP), Intermediate System to Intermediate System and Open Shortest Path First protocols. Similar extensions will be available for Enhanced Interior Gateway Routing Protocol.

These extensions enable the maintaining of Layer 3 relationships between the router experiencing a restart and all its peer routers, without maintaining any state between the route processors, thus eliminating scalability issues.

When two routers form a peering relationship, they exchange capabilities. New capabilities have been added that caution peers not to remove a failed router from the database because it could come back even before connectivity protocols time

These new routing protocol extensions allow a restarting router to notify peers when it has returned, to request all the information it needs to rebuild its route tables and, in the case of BGP to reestablish the TCP session between peers.

NSF and SSO preserve user sessions during a route processor failure. Even voiceover-IP calls have survived SSO tests.

SSO and NSF are just two of a wave of new features coming to networks that provide graceful recovery from different types of network failures. The result is a new level of end-to-end resiliency on

Goldberg is manager of the product management Internet technologies division at Cisco. He can be reached at cgold ber@cisco.com.

# Ask Dr. Internet By Steve Blass

Our company manufactures Ethernet devices. Are there any products that help simplify the bookkeeping necessary for Ethernet media access control address assignment? We purchased a block from IEEE and we're looking for a way to keep track of which addresses have been assigned on the factory floor. We assumed this was a common issue with hardware manufacturers but cannot find anything created specifically for this job.

To make sure MAC addresses are unique, the first 24 bits of each address identify the network interface card's (NIC) manufacturer. The IEEE assigns manufacturers the numbers, called organizationally unique identifiers. The remaining bits of each MAC address act as a serial number, assigned to a NIC when it is made. I do not know of specific MAC address assignment management tools (can readers offer any tips?). However, serial number assignment management is part of several manufacturing enterprise resource planning

systems, so you might find a solution with these. Although the sequential assignment of MAC addresses in real time across multiple manufac turing stations and facilities is nontrivial, the fundamental problem is to use identifiers in sequence. Review the production management system's serial number management facilities to get started.

Blass is a network architect at Change @Work in Houston. He can be reached at dr.internet@changeatwork.com.

GEARHEAD INSIDE THE NETWORK MACHINE



epetitious work is aggravating. If you ever have to do something such as transfer files on a regular basis from a Windows server to another server using FTP, you most likely will have come to grips with scripting FTP sessions. Here's one we threw together to send the report from our weather station connected to our internal Windows 2000 Server to our external Web server:

open www.ourserver.com gearhead secret cd web/weather lcd e:\inetpub\ftproot\weather put myweather.htm bye

quit We use this with the command "ftp -s:e:\ftpscript.txt." Great! But the weather station updates the report every 5 minutes. We could leave a batch script looping — pretty much guaranteed to barf within a few hours — or use the Windows

# **Automating your network**

Task Scheduler, which only allows a minimum repeat interval of 24 hours (unless you want to schedule multiple jobs), but the chances of trying to transfer a locked file (resulting in another barf) are high.

We needed a better way. Our ideal solution was to trigger the FTP job by the weather station report being updated. We found our solution in the shape of OpalisRobot from Opalis Software.

OpalisRobot is awesome. It consists of a server component and a client component — the latter can run on any machine, including the one hosting the server.

Using the client, you graphically construct a process flow by dragging "objects" from a palette into a workspace and linking them. The starting point can be a scheduled trigger or an event.

So we dragged a Monitor File Event icon from the File Management objects group into our workspace. We filled in the filename and location attributes, and specified the event to watch for was the file changing (we also could trigger on file deletion, access, attribute change, etc.).

Next we dragged over a Run Program Task object and filled in the details of the program to run and the arguments to use. Once objects are configured in the workspace, they can be linked by clicking and dragging from one object to another.

Sharp's newest

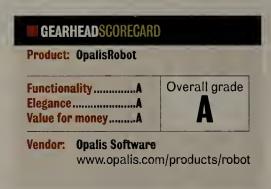
based has a 400-

MHz processor.

Zaurus Linux-

It works great! Every time there's a file update the FTP utility kicks in and transfers the report to our Web server. Perfect! Then we thought: Let's test to see if we can ping our Web server (our DSL connection has become flaky and dies regularly, taking out our DSL modem and router.

We added an Internet Application Status object and set it to ping our server, and re-



arranged the links to connect the Monitor File Event object to the Internet Application Status object and connected that, in turn, to the Run Program Task object and a new Send E-mail object.

Next we specified the rules that determine the conditions for triggering the Run Program Task and Send E-mail objects. The rules were based on the success or failure of the ping — success triggered the FTP job, while failure sent an e-mail message.

OpalisRobot has a feature called Dynamic Data that provides access to data in objects that can be used in text messages or arguments to other objects. We used the stop time from the Internet Application Status object in the Send E-mail object to report when the ping had failed. Opalis-Robot also includes static variables that cover user-defined variables (useful for address lists, for example) and system variables (Computer Name, SysDir, etc.).

We started to get ambitious: We also added a Syslog Task object to send a syslog message when the ping fails. OpalisRobot includes objects for Popup Messages, Pager Messaging, Interactive Message (à la instant messaging), Alert Windows (dialog boxes), SNMP Trap generation .... The facilities go on and on.

There is so much to this product that a single Gearhead column can scratch only the surface, and to be honest, for our file replication problem, there are much simpler utilities we could use. But for other network management tasks we now will be automating, it will be perfect.

OpalisRobot is an excellent value for the money (\$620). Outstanding!

Automatons may write to gearhead@ gibbs.com.



on high-tech toys By Keith Shaw

### **Sharp launches second Linux**based PDA

Sharp last week launched its latest Zaurus PDA, the Zaurus SL-5600. The Linux-based PDA includes features such as wireless connectivity and a high-resolution LCD screen.

Sharp says it is aiming the PDA at the enterprise market by adding high-performance features, including a 400-MHz Intel xScale processor with a 32-bit instruction cache, 32-bit data cache and 100-MHz memory interface. Other features include a QVGA LCD screen, integrated 37-key QWERTY keyboard with a sliding cover, 64M bytes of flash memory for storage, and 32M bytes of synchronized dynamic RAM. Expansion slots support Compact Flash and Secure Digital/MultiMedia Cards.

The SL-5600 tackles wireless connectivity through the expansion slots (and built-in drivers) for Compact Flash connectivity products, including 802.11b wireless LAN adapters, Cellular Digital Packet Data wireless modem cards, 10/100 Ethernet and 56K bit/sec modem cards. Sharp says it plans to launch Code Division Multiple Access 1xRTT and General Packet Radio Service cards in 2003. The PDA supports Java applications through its Jeode Java virtual machine environment, Sharp says. Bundled applications include redesigned personal information manager software and a PC synchronization for Microsoft Outlook. E-mail software includes the ability to connect to a POP3/Internet Message Access Protocol 4/Simple Mail Transfer Protocol e-mail account. Finally, the browser has an HTML Internet browser and integrated media player

that can play MP3 and MPEG-1 files.

More details are available at www.myzaurus.com.

#### **Bantam offers USB storage drives**

Bantam Interactive recently launched USB storage drives in a very portable form. The new devices include weatherproof casing, and are available with 32M and 64M bytes of storage capacity. The 32M-byte version costs \$50; the 64Mbyte version costs \$80. Both are available at www.bantamusa.com.

The devices measure 2.8 by 0.9 by 0.4 inches, and weigh 0.4 ounce, Bantam says. The devices support Windows 98 SE, ME, 2000 and XP, and Mac OS 9.1 or higher. The devices also come with a blue LED status indicator to tell the owner when the drive is in use.

Commodio pitches a "voice mouse"

Commodio says its new Qpointer HandsFree is a "voice mouse" that offers application-independent voice interaction with a computer screen's contents. The

device lets a person use his voice to browse the Internet, write and send e-mail, create and edit documents, or dictate directly into any Windows application.

Other features include the ability to perform drag-anddrop operations, as well as activate keyboard keys and shortcuts. For example, a user "points at" a screen object by saying the name of a screen objects set, such as "toolbar buttons," Commodio says. Indexing tags then are displayed next to all the screen elements of that screen object set. The user then speaks the index tag associated with the screen object he wants, and the cursor jumps to the object. With the cursor positioned, any mouse command (such as "double click") can be emulated by the user's voice. For more information, go to www.commodio.com.

Hewlett-Packard said it is replacing its midrange mono-

### **HP updates laser printers**

chrome laser printer line with the LaserJet 4200, adding performance features for the same cost as its predecessor (the LaserJet 4100). The company also announced the LaserJet 4300 printer for companies that want faster speeds and more flexibility than

> the 4200. HP says both printers can print the first page in less than 9 seconds. The 4200 can print up to 35 pages per ininute (ppm), includes a 300-MHz processor and

has 48M bytes of RAM. The

\$50 gets you 32M bytes of portable storage.

4300 can print up to 45 ppm, and has a 350-MHz processor and 64M bytes of memory. Both printers can hold 2,600 sheets of paper, 750 sheets in the "face down" output

The 4200 starts at \$1,100; the 4300 starts at \$1,400. Both printers are available now. Go to www.hpshopping.com for

Shaw can be reached at kshaw@nww.com.

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**EDITORIAL** John Dix

# Web conferencing without client software

udging by WebEx's third-quarter results, people are taking to Web conferencing in a big way. Sales jumped 66% to \$36.8 million compared with the same quarter last year. But even though WebEx has captured a daunting 57% share of the Web conferencing market, competitors are still out there trying to improve on the concept.

One of those companies is PlaceWare (www.placeware .com). A big advantage PlaceWare offers over WebEx is attendees can participate in meetings without downloading client software; anyone with a browser can log on.

PlaceWare customers have the option of uploading their presentations to a PlaceWare server or sharing local applications using a PlaceWare frame that can be opened onscreen and simply stretched around the content to be shared.

The latter is slick for spur-of-the-moment changes in a meeting, but the former offers the benefit of 1) safeguarding against your laptop blowing up in the middle of a presentation, and 2) added security: Uploaded files are encrypted and downloaded to attendees with decryption keys that are destroyed after the meeting, making it difficult to find residual meeting data. PlaceWare can support meetings with up to 2,500 attendees.

Unfortunately the PlaceWare user interface is not as userfriendly as those from WebEx and some other competitors. The company says it will overhaul the interface in December. You can try PlaceWare free for 15 days.

Another company trying to corral Web conferencing share is eDial (www.edial.com), which is selling a server that lets companies host their own audio and Web conferences.

The SIP-based conferencing server has a built-in Web server and ties into your PBX. Employees use a browserbased interface to set up audio or Web-based conference calls. Like PlaceWare, no additional software is needed on the client. Unlike PlaceWare, you have to upload your PowerPoint, Word and Excel files to the server to share

The system's primary appeal is its low cost. EDial boxes range in price from \$28,000 for 48 ports to \$78,000 for 96 ports. Given that Web conferencing costs 35 cents to 45 cents per minute when you pay per meeting, that cost can be justified pretty quickly. EDial doesn't support collaborative environments. The company says it will leave that to WebEx.

Both tools have their advantages and are worthy of a look, but I'd wait for the new user interface from Place-Ware before seriously considering that one.

> - John Dix Editor in Chief jdix@nwu.com

# opinions!

## Desktops don't need Gig E

Notably absent from Kevin Tolly's column "Gigabit to the desktop: A decision you can't escape" (www. nwfusion.com, DocFinder: 3123) is the reason a desktop needs Gigabit Ethernet. What is the application that requires it? What is the return-on-investment model to support it? Is there even a desktop that can come close to filling a Gigabit Ethernet pipe? Highend file servers struggle to break 500M bit/sec; even if you were to run uncompressed NTSC digital video feed to the desktop, it's only 200M bit/sec. While a Gigabit Ethernet LAN on motherboard might cost less than 10/100M bit/sec Gigabit Ethernet, Tolly presents no cost analysis on Gigabit Ethernet switch ports and backbone upgrades to support the increased load, assuming a desktop could in fact fill a Gigabit Ethernet pipe.

> Chris Hoogenboom Oxnard, Calif.

After reading about Case Western Reserve University's investment in Gigabit Ethernet (Doc Finder: 3124), I can't help but wonder if the deciding factor was the imbedded fiber investment rather than an inherent need for gigabit bandwidth. Reading between the lines leads me to believe the \$200per-gigabit network interface card (fiber imbedded) was the clincher. This let the university avoid the multimillion-dollar expense for copper replacements and averted the use of media converters, which represented another unmanageable failure point.

I am very cynical about the need for Gigabit to the desktop within our lifetimes. My continued hypothesis is that human beings cannot in any way process information presented at gigabit speeds, and that any conceivable applications today require only multimegabit support. Ergo, why make the major

E-mail letters to jdix@nww.com or send them to John Dix, Editor In Chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

investment in cable plant upgrades beyond Category 5 and multimode fiber when there is no compelling need?

> William Dennett Principal consultant **Enterprise Solution Providers** New York

### **Another approach**

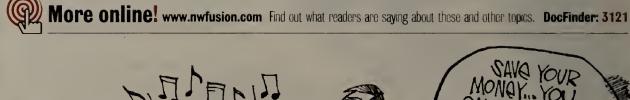
Regarding Thomas Nolle's column "Is it too late for FCC hearings?" (DocFinder: 3125), here's the real answer to the telecom problem. First, the government should buy the physical plants currently owned by the regional Bell operating companies, cable companies and anybody else that has wire in the ground. Government should then allow usage of the wire, cable, etc., on a competitive basis with very low barriers to entry and exit.

This approach also would apply to the electrical industry. The reason it works is because economies of scale say that for some services it makes sense to have infrastructure provided only once, by one entity. This works for roads; water, electricity and natural gas delivery; and sewage service. These services are provided by a government-managed or -owned monopoly because the infrastructure is very expensive to duplicate. In this environment, the company that gets in first will always have a huge competitive advantage, so we have government regulation. In addition, having multiple gas, water or electrical networks makes absolutely no sense.

I wonder what it would cost to buy all the Baby Bells, plus the cable companies?

> Joe Taylor Overland Park, Kan.

Nolle replies: I'm afraid I have to disagree. The taxpayer would pay through the nose, and there'd still be no assurance that any beneficial services or rates would arise from the deal.







**TOTALLY UNPLUGGED** 

Ira Brodsky

ioinformatics, the management and analysis of biological information, is today roughly where the Internet was 10 years ago. With the nearly finished

Human Genome Project, miraculous transformation of HIV from death sentence to manageable disease and development of "biochips," this nascent IT sector has only just reached the starting line. (An overview of the HGP is available at www.nwfusion.com, DocFinder: 3126.)

Storing, searching, analyzing and sharing terabytes of data is what bioinformatics is all about. That's good news for the computer and networking industries, though so far most of the action has been confined to a relatively small number of government, academic and commercial research centers.

That situation might change soon. Although the biotech industry has not come close to delivering on its promise, Moore's Law is finally coming into play, and solutions soon will begin trickling down to physicians' offices.

Personalized medicine is bioinformatics' Holy Grail. We've known for some time that a specific drug might work well for some people while causing harmful side effects for others. Instead of the Federal Drug Administration rejecting a drug because 1% of patients suffer serious side effects, we will be able to produce custom-made drugs for different groups and, ultimately, individuals.

This is where biochips come in. Biochips are small devices that can

# Now on the 'Net: Life's source code

be used to perform thousands of tests simultaneously on a single sample. Applications range from testing for specific genes to pinpointing disease types to monitoring treatments.

That's not to suggest biochips ever will replace research centers. On the contrary, biochips and research centers complement each other: Small, affordable field devices would collect data on entire populations from which bioinformatics centers would design more useful biochips.

The challenge for bioinformatics is making sense out of genomic and proteomic data that is growing by leaps and bounds. Living systems contain thousands of genes and proteins, many of which interact in subtle ways. Finding order in seemingly chaotic data calls for more storage, processing and transmission capacity.

The first response from major research centers and pharmaceutical companies was to purchase expensive supercomputers. But often what's needed is the ability to perform many small processing tasks simultaneously. Bioinformatics centers increasingly are turning to storage-area networks, server clusters from companies such as Hewlett-Packard and Linux Networx, and even grid computing from companies such as Platform Computing and United Devices.

Understanding underlying disease processes is key to finding effective treatments and eventually cures. Helping to assemble all pieces of the puzzle will be one of the Internet's finest accomplishments.

Brodsky is president of Datacomm Research, a Chesterfield, Mo., consultancy. He can be reached at ibrodsky@datacommresearch.com.

Bioinformatics centers increasingly are turning to storage-area networks, server clusters . . . and even grid computing.



**REALITY CHECK** 

Thomas Nolle

love a term like convergence. Its dictionary definition, "coming or getting together," is broad enough to cover just

about anything. So it's pretty safe for us to say that convergence is happening, which is what we've been doing for the last five years or so.

Only now, maybe some kind of converging really is happening. It's not clear what is converging or what we're converging on.

Take the optical space. Last month Ciena announced it was buying into WaveSmith Networks, a new-age edge multiservice player. In January, Ciena announced it was buying into Equipe, another new-age core multiservice player. Is this an example of new-age convergence? Multiservice convergence? Add the fact that Sycamore Networks is supposedly looking at a marriage with a multiservice player and you can add optical convergence to the list of possibilities. After all, these players are certainly coming together.

Carrier players as diverse as AT&T and Verizon; WorldCom and Cable & Wireless; and Level 3 Communications and SBC Communications all are talking about multiservice networks — which is what all the vendors are talking about, too. But before we jump to the conclusion that they're all converging, we've got to acknowledge that some of these players seem to think multiservice means Multi-protocol Label Switching (MPLS) and others think it means ATM. So while we can admit to carrier convergence on "multiserviceness," we can't get too precise on just what that means.

To thicken the plot, there are players that think ATM and MPLS are converging. WaveSmith, in fact, traditionally has positioned itself as a player in bringing about that very convergence. So has Equipe Communications, the other Ciena partner. You might even recall that in the late '90s, vendors such as Nortel were arguing that MPLS should be made more ATM-like. See, we've even got convergence historicity!

Then, of course, there's that old IP convergence stuff. The carriers are now all talking about IP Centrex, which sounds like the converging of at least IP and Centrex. Last month some Internet mavens even suggested that the Federal Communications Commission essentially let the regional Bell operating companies and interexchange carriers sink,

# Converging convergences?

and have everything converge on the Internet. That was before the big distributed denial-of-service attack on the root servers, and of course distributed DoS is convergence, too.

Well, can we learn anything from this? Despite the fact that I probably sound like Andy Rooney, yes we can.

First, we've had common carriers endorse IP voice. IP voice on the premises is a good idea for business; otherwise, offering IP Centrex is dumb. Planning to replace a PBX or key system? Converge on IP.

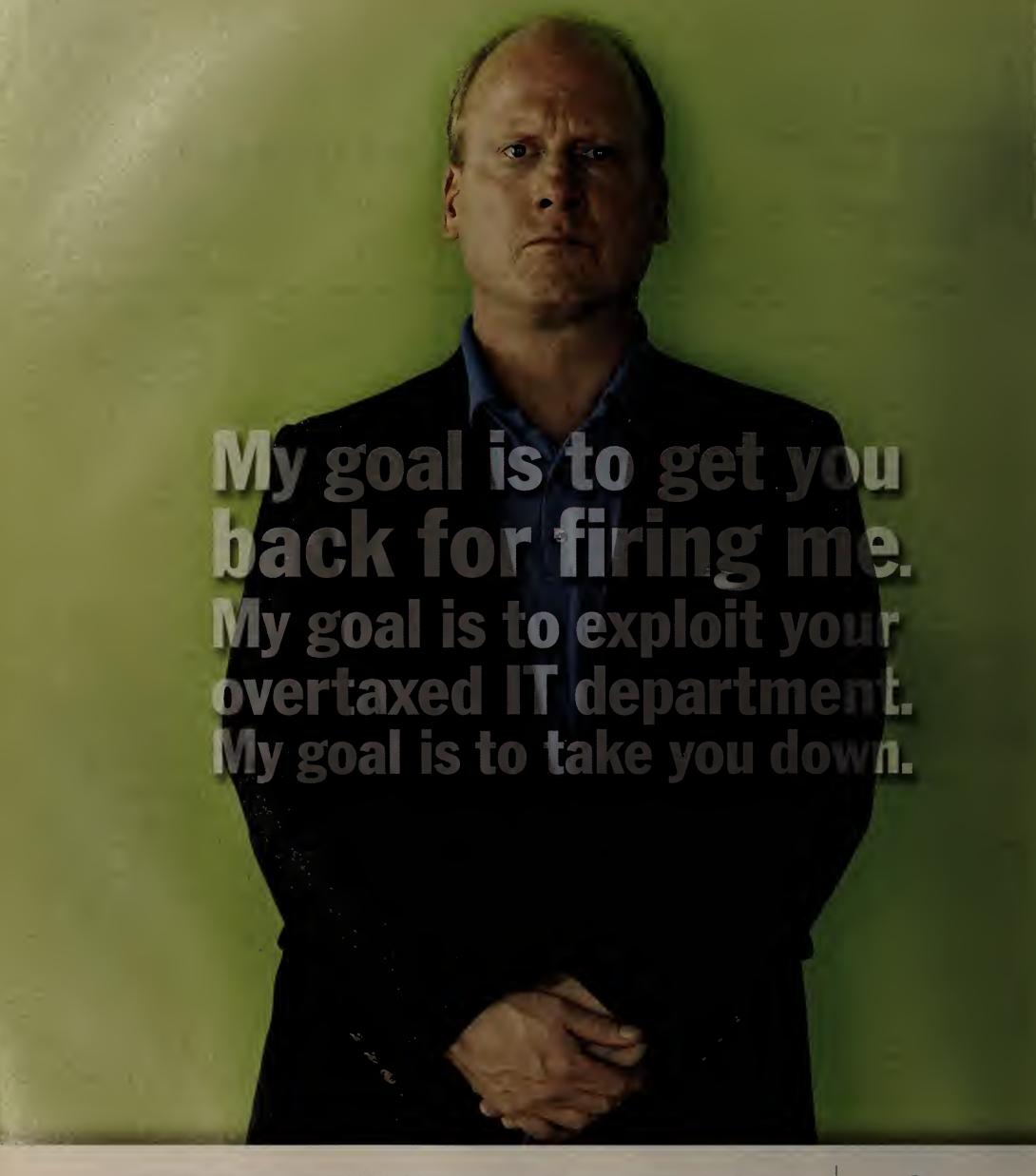
Second, we've agreed that MPLS is the right answer for the WAN, we're just arguing over the flavor. And make no mistake, whether we get to MPLS by making IP more ATM-like or by making ATM more IP-like, we're left with something that's going to be a lot closer to IP than to ATM. For users, IP-centric carrier infrastructure will mean more variety in IP service features. Despite our decadelong love affair with all things IP, most companies aren't ready for the Big Convergence on IP-based carrier services. It's time to stop thinking about tunneling over the Internet and start asking just what IP services a profit-centric carrier might sell you.

Third, if we're re-engineering carrier data networks around an MPLS framework and premises networks around IP voice, can we really expect that the two won't, dare we say, converge? What's likely to happen is that carriers would use packet infrastructure built for supporting data services to gradually extend packet voice services to high-value users, where the customer premises equipment framework is IP-friendly. How could you get friendlier than premises IP voice? The best voice deals two or three years from now are going to go to the shop that has IP voice equipment on premises, period. To be sure, we won't be replacing Class 5 switches in that time frame, but we'll be starting to unload traffic from them, and by the end of the decade they'll be going away.

So what do you think? Interesting? Want to hear more? Let's get together.

Nolle is president of CIMI, a technology assessment firm in Voorhees, N.J. He can be reached at (856) 753-0004 or tnolle@cimicorp.com.

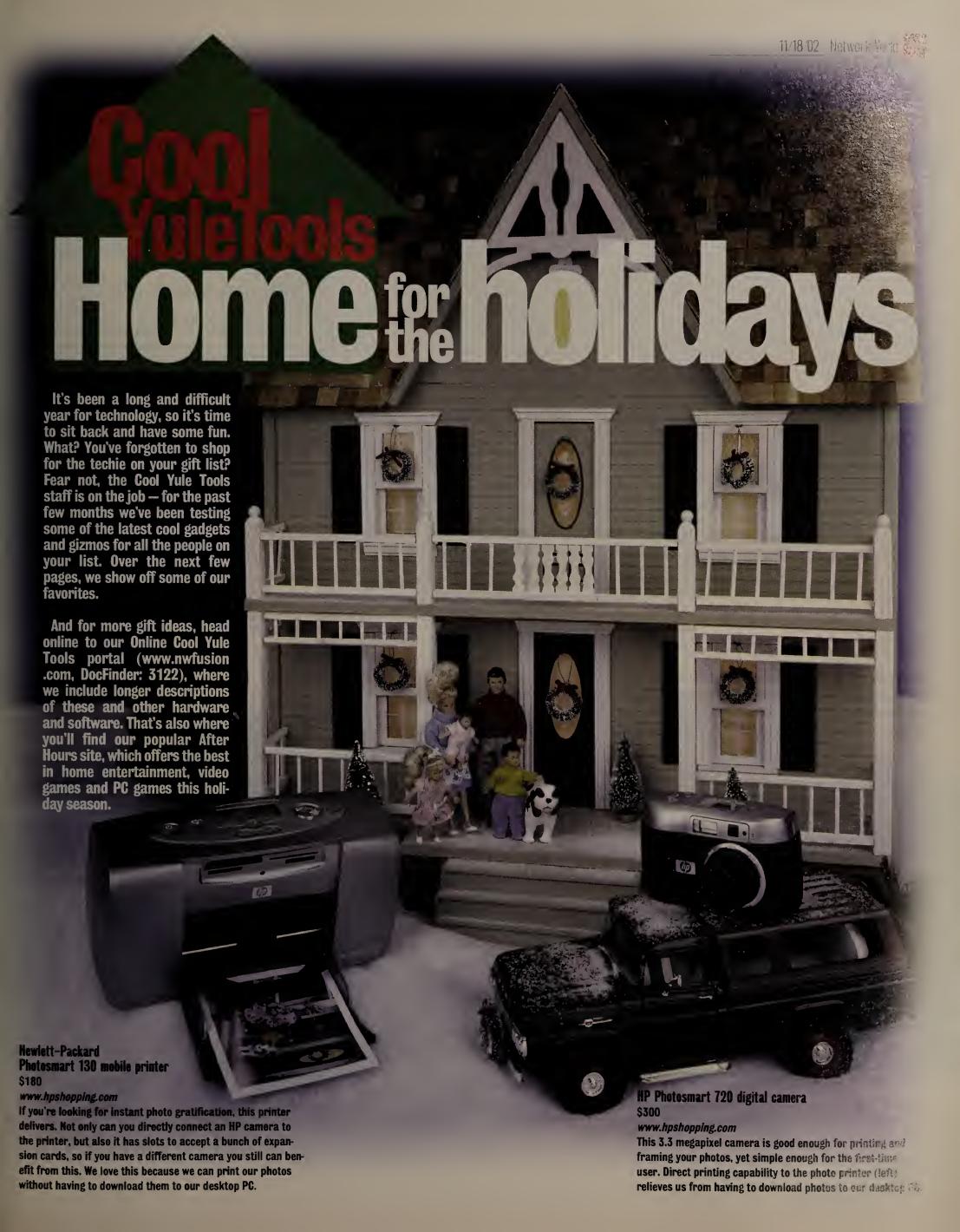
Only now, maybe some kind of converging really is happening. It's just not clear just what is converging or what we're converging on.



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New threats can blow through any firewall or anti-virus software. That's why we deliver seamless information protection with centralized management for networks, servers and desktops. From proactive research and award-winning software to 24/7 protection and response services, our solutions detect, prevent and respond to attacks and misuse. And it's all backed by the X-Force, our global protection services organization. Want to see more? Call 800-776-2362. Or visit www.iss.net/nww.







# Jingle all the way

Every year, we love playing with the latest cell phones. This year is no exception - here are our favorites. With advances in ring-tone technologies, we wouldn't be surprised to see a bunch of cell phones at our door singing the latest holiday carols.

(Left to right)

LG 5350 (Sprint PCS Vision network): Its color screen and great sound might be better than what's on your laptop. Features calendar, e-mail, voice dialing, Web surfing, games and screen savers. Includes an "airplane mode" that turns off the phone but lets the other applications run.

Siemens S46 (AT&T Wireless): Going around the world this year? You need a phone that is compatible with all the different networks in the world, and this one fits the bill. Just don't call us when you're at the Tower of London - we'll get jealous.

Kyocera 7135 Smartphone (Verizon): This is Kyocera Wireless' third attempt at a converged device (cell phone plus PDA), and it's a charmer. A perfect size for the person who wants it all (including an MP3 player) in their gadget.

Sanyo SCP-4900 (Sprint PCS Vision): Customizing this phone with new ring tones, filling up your contacts database and downloading games will keep you busy for weeks. The brilliant color screen and long battery life adds to our joy.

Motorola i95cl (Nextel): Nextel goes color with this model, which also has the very popular Direct Connect feature and Java capabilities to download applications.

Moterpla V70 (Cingular): The ability to flip the phone up like a Zippo lighter is the coolest feature of this small, sleek and stylish

Samming A500 (Sprint): Full-color screen and the ability to attack an icon to identify callers make this phone a must-have. The phone runs on the new PCS Vision network.

# Altec Lansing 5100 5.1 speaker system (top)

www.alteclansing.com

Your computer is more than just a spreadsheet cruncher (it better be). These days it's a gaming center, a jukebox and a movie theater. Graduate beyond the tiny speakers and hear what you've been missing with this 5.1 speaker system. The 100 watts of surround sound power will put you into the middle of the action.

#### e.Digital Odyssey 300 (far left) \$200

www.edigital-store.com

It's portable, so we can take it with us when we're working out. The 128M bytes of memory (plus expansion slot for more songs) let us put enough songs on it so we don't get the same song played over and over. And it runs on one double-A battery.

# Linksys WET11 wireless bridge (middle)

www.linksys.com

If you're going to hook up these new devices with Ethernet ports to your network, a wireless bridge is a lot easier than stringing Category 5 cable all over your house. We were impressed with the simplicity of the Linksys device. If you want a quick way to hook up your Xbox or PlayStation 2 to the Internet, get this bridge.

## Turtle Beach Audiotron (bottom)

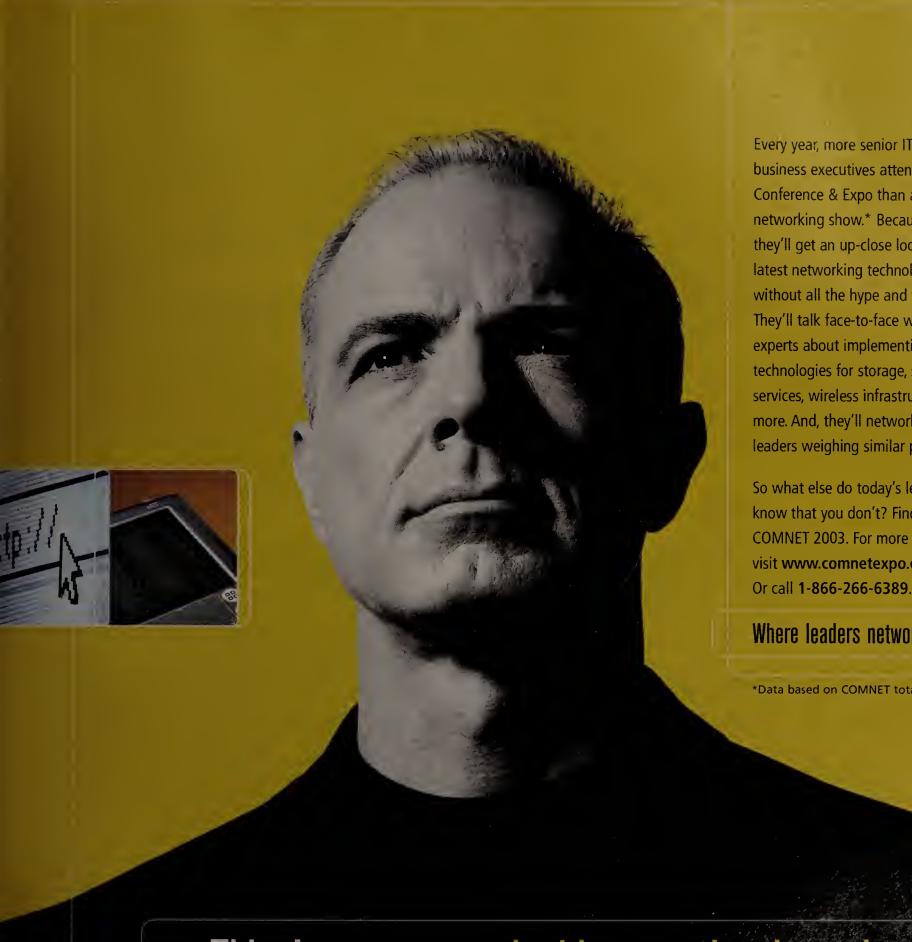
www.turtlebeach.com

This is the coolest device for playing MP3 files on your network over a home stereo. Plus, you can stream Internet radio stations through the device, including the BBC!









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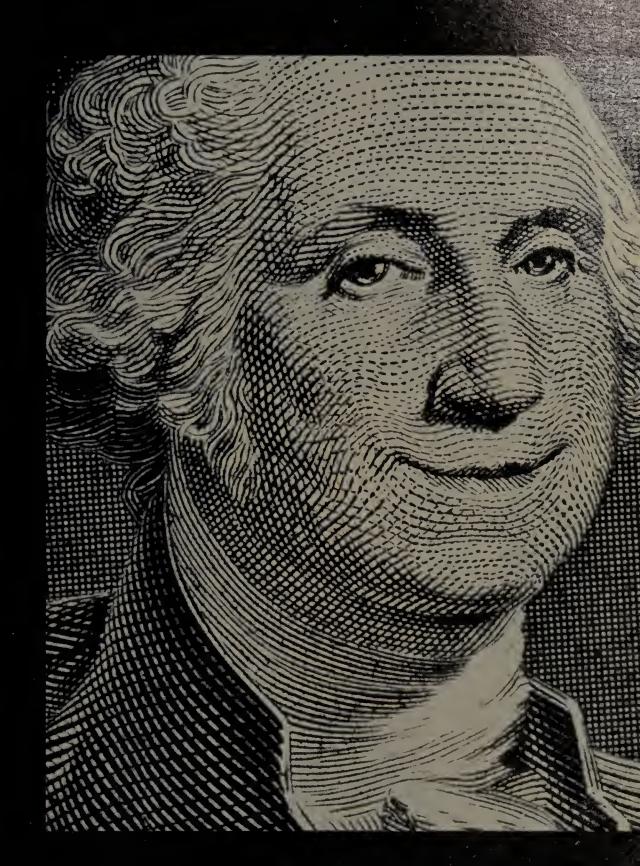


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(Clackwise from top)

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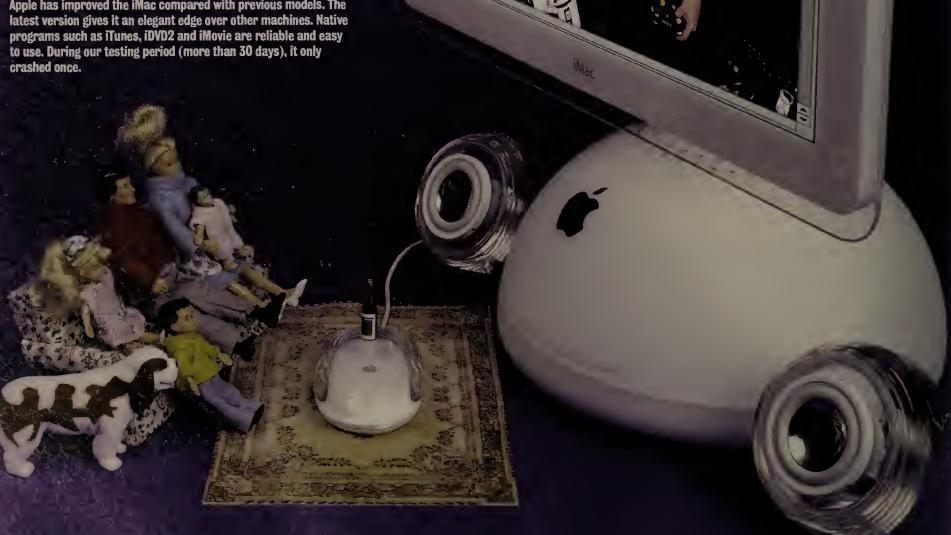


NetworkWn

This might be the last page, but it's not the end of our gift guide! Through the wonders of the Internet, we have more gift ideas to tell you about. Head to , type in and get some more ideas, courtesy of our Senior Reviews Elf and all of **Santa's Little Testers...** 

Apple iMac \$2,000

Apple has improved the iMac compared with previous models. The to use. During our testing period (more than 30 days), it only



Senior Reviews Elf: Keith Shaw

Santa's Little Testers: Ann Bednarz, Bob Brown, Chris Cormier, Eric Cormier, Brett Cough, Greg Cusack, Jennifer DiSabatino, Adam Gaffin, Brian Gaidry, J.T. Gallant, Sandra Gittlen, Tim Greene, Monica Hamilton, Peter Hebenstreit, Tom Kroon, Jason Meserve, Melissa Shaw, Zach Sullivan, Alex Weinberg and Neal Weinberg.

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**Features** 

TESTER'S CHOICE Thomas Henderson



# This is a test, please join in

icrosoft has finally crystallized its .Net philosophy into what's supposedly going to become the crowning jewel of this once-nebulous initiative: the .Net Server. I've been charged with the task of testing the final, or "gold"

code," version of this yet to be released product for *Network World*.

There are four versions of the operating system: Web, Standard, Enterprise and Datacenter. The Enterprise edition supports the highest common denominator feature set, and it's likely that we'll test that set of code.

Microsoft promises to deliver the final code soon, so I need your help now.

Here's the dilemma. Because .Net is a huge code set with feature listings that are pages long, I need to determine which of those features are important to you as an enterprise network professional — and your organization — and perhaps the individual that will make use of the test results information.

I've developed a Web form comprising the feature sets of .Net Server (www.nwfu sion.com, DocFinder 2922). I need to know your insights on what our test of this new product should entail in a prioritized manner. The form is simple, but the operating system is not.

Microsoft's .Net server message issued in the early-beta versions of .Net is that .Net has incremental changes over Windows 2000 Server editions, with the exception of highly evolved Web services in the .Net API sets. There also are changes to Active Directory, Microsoft's successor to its domain management model, that underpin in the .Net strategy. New services anchored on Active Directory include those based on Universal, Description, Discovery and Integration specification and authentication services for Web applications.

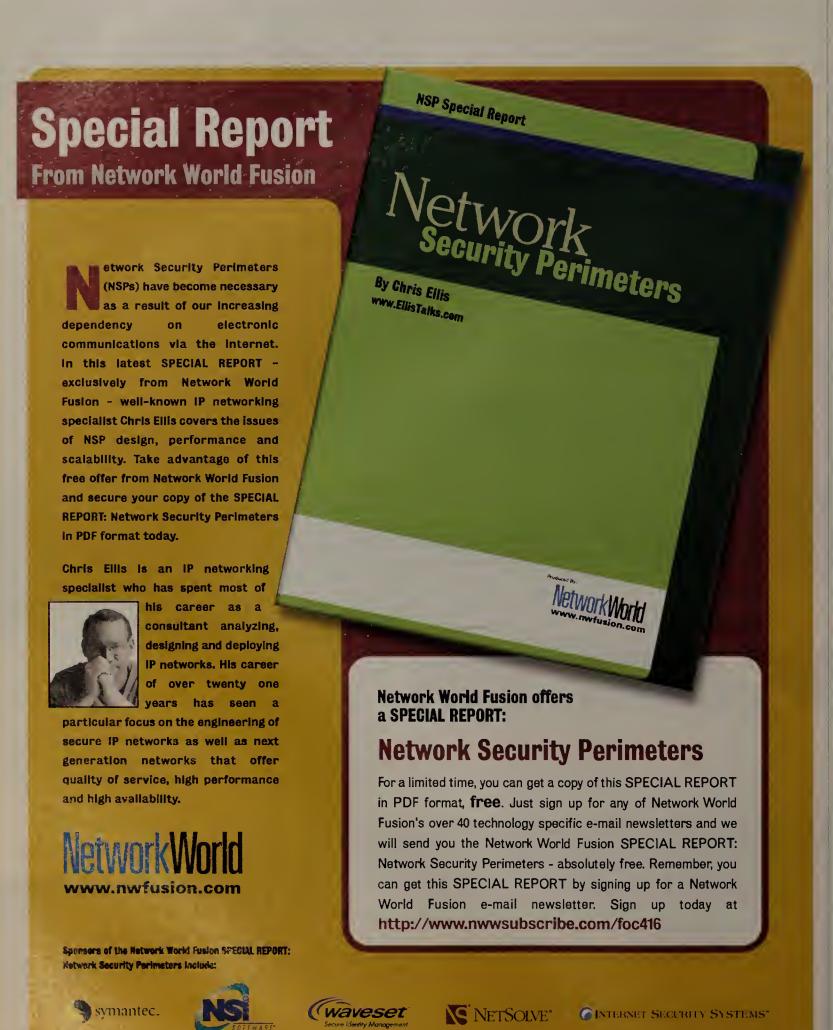
Microsoft wants to play and ostensibly be a good neighbor on every network. Redmond engineers have added new management APIs to .Net, and features that are supposed to allow heretofore difficult manipulation of managed domains, users and services — or so we must test if you tell us to do so.These changes also are rooted (if you'll excuse the pun) in Microsoft's initiatives toward interoperability with third-party management and directory services infrastructures. Is interoperability as important to test as increased management features? Tell us on the form.

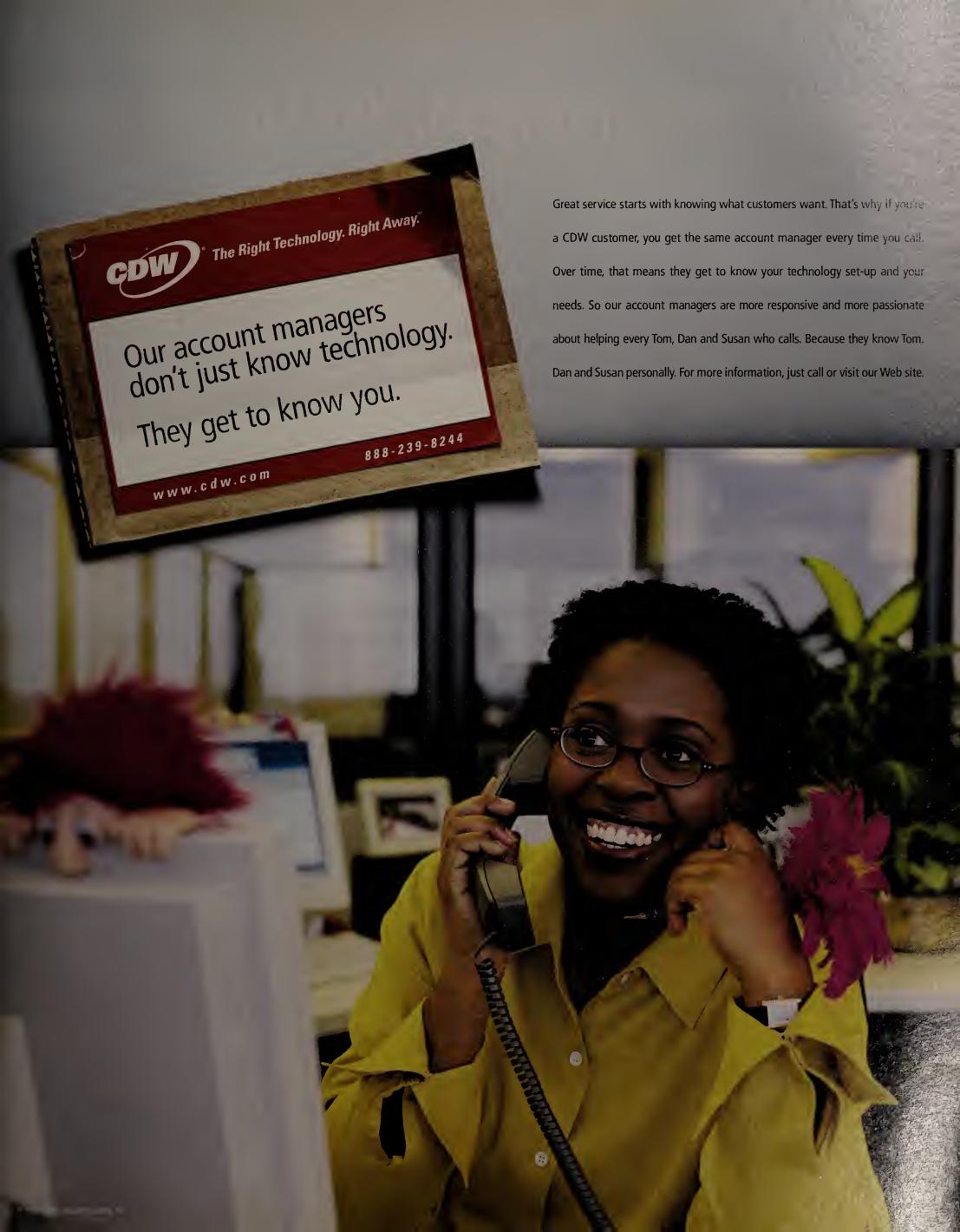
The .Net Web services additions are seen as a key ingredient to the .Net mantra. While some organizations maintain file-and-print servers separate from those that manage Web applications, others want to integrate not only the aforementioned services, but additional Microsoft and third-party applications such as Exchange and Oracle. I need to know if centralized or distributed services matter to you.

And so I need your help. Fill in the form, and click submit. The information will remain private between *Network World*, you and me. In addition to the form, you can send your extended comments to gta@nww.com.

In the name of collecting a valid data set for this project, I'll be tracking IP addresses for unique entries. Thanks in advance for your time.

Henderson is principal researcher for ExtremeLabs of Indianapolis, and a member of the Network World Global Test Alliance. He can be reached at thenderson @extremelabs.com.





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# Are you the box?

I executives discuss the importance of seeking outside input

BY SUZANNE GASPAR

At LoJack, field technicians do more than install stolen vehicle recovery systems. They also give input for developing IT mination plans.

Bob Lcm, vice president of IT for the company in Westwood, Mass., says a technician's comment recently led to the purchase of ViryaNet Service Hub portal software for mobile workforce access and management. The software will replace LoJack's proprietary system, to eventually automate and optimize nearly 300 field-rvice schedules nationwide for delivering next-day and same-day service.

It's feedback that's educational, yet off-thecuff, and it shaped a phased rollout to accommodate LoJack's fourth consecutive quarter of sales growth. Scheduled for this month, the Service Hub launch will let LoJack scale operations, reduce travel time and boost the number of daily installations.

Like Lem, you're probably also seeking innovation in your IT department. However, the challenge is, how do you think outside the box when essentially you and your peers are the box? The answer is to seek the input of people on your staff and even non-IS people throughout the organization.

Lem discovered hidden opportunity when folks let down their guard. In a 45-day information-gathering process, a 10-person core team consisting of sales, field operations, marketing, finance and an outside systems consultant shared views of how they'd scale the mobile workforce access and management system. The ini-

tial bias was that the order-entry system presented a bottleneck.

After taking a whiteboard to each department's procedures, IT drilled down further with a five-member team, who sat in for a day on the job with department line managers. The routines revealed that the current 30-second order-taking system was simple, yet efficient as compared to industry best practices.

People were relaxed after spending time together and conversation flowed naturally, leading IT to an "aha moment" during a particular installation ride-along, Lem says.

A technician had finished one job and was driving with the team to the next dealership when he noticed a LoJack truck driving in the opposite direction. "The tech says, 'That's one of the things that I'll never understand, if I was back here, and he was back there, then why am I driving to where he was and he's driving to where I was?' That was a good point," Lem says. "In retrospect it sounds like a no-brainer when you think about the dynamic changes that happen every day.

Optimizing drive time would be a big enhancement for us . . . something we should focus on first."

The technician's feedback revealed key frustration points, such as an inability to process dynamic orders and rescheduling based on cancellations and workers calling in sick, that would make the system difficult to scale and grow.

While LoJack isn't disclosing how much it invested in the new system, pricing starts at \$750,000 for ViryaNet Service Hub, Service Scheduler and eContract applications it also plans to use. In terms of return on investment, LoJack estimates that 25% efficiency savings will pay for the first phase of field service initiative in six months.

Tim Stanley, vice president of IT for Harrah's Entertainment in Las Vegas, regularly bets on the likelihood that people will share useful insight when they gather to brainstorm. To that end, IT hosts breakfasts and luncheons, inviting local marketing, finance and other workers for informal chats. IT staffers mix at golf games, entertainment shows, parties, and work directly with employees during rollouts.

While formal project meetings also are held, IT finds that this relationship building fosters a networking environment where people are less guarded about sharing back. Comments such as "The interface pretty clunky; it takes us some work; the data is stale" give IT the information it needs to improve systems, Stanley says.

When IT rolled out a wireless hotel checkin system last year, Stanley videotaped how the technology affected the "wow" experience for customers and equipped staffers with handheld devices to capture comments made about the process. "We had a checklist based on some scenarios such as if there wasn't a credit card on file or if they were sharing a room and splitting the account. We were looking at how frequently we were hitting those scenarios and how many successful check-ins we had," he says.

Using the feedback, IT added a new dataentry screen to its wireless hotel check-in system. The new screen ensured that when more than one customer shares a room, the different Total Rewards accounts that are needed for the check-in procedure could be captured and accounted for as part of the process.

Stanley has found that it's not about the technology, it's about the people using it. Often there's a knowledge gap in which people don't know that functions exist or that others need new functions added. It's an interactive process that squishes the focus from the big issues to the more minute details. He says relationships get feedback going both ways.

The upside is that staffers buy into new technologies when they play a part in the implementation plan. "It's one thing to build the whole thing and put it in front of them. Play off the idea with them, and sooner than later, because they're going to tell you what you're missing or what you're not thinking about," he says.

Bob Lem, vice president of IT at LoJack, says feedback from a technician led to the rollout of new portal software for mobile workforce management.

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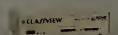
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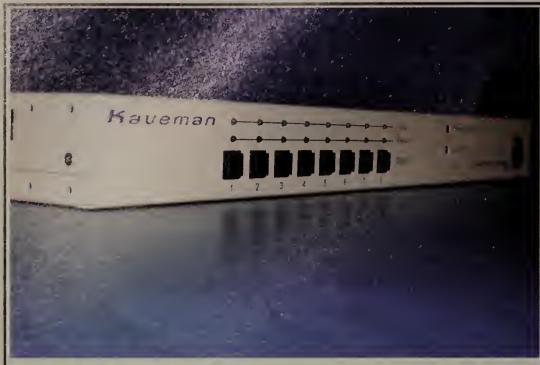


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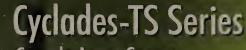
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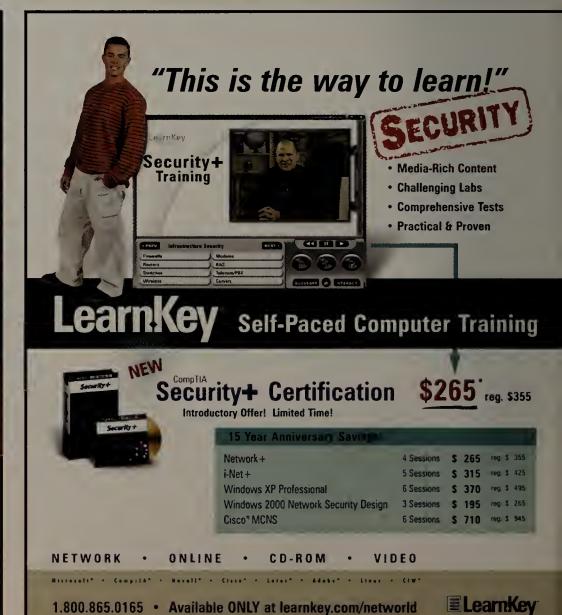
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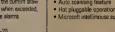
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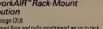


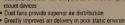
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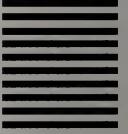
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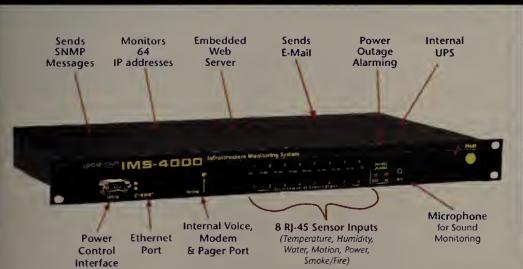
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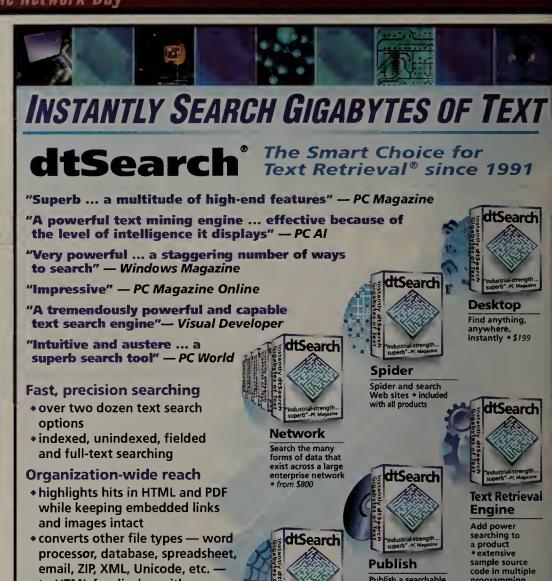


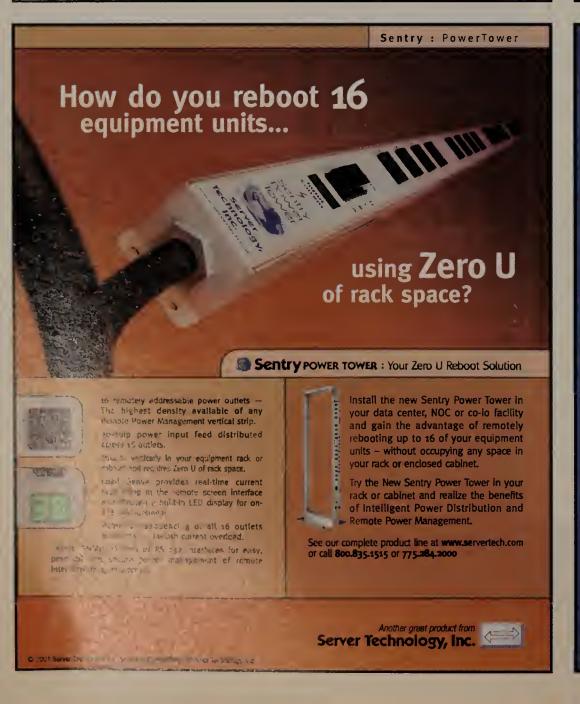
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# Careers in Security



Anyane who thinks IT security is just about firewalls is underestimating the challenges. According to Michael Patrick, executive director of warkfarce recruiting and planning at Northrop Grumman Information Technology, the task includes everything from preventing an IT security breach, to recovery should an attack take place, to actual IT operations - the stuff of navels where cyber warfare and attacks on enemy IT systems is real.

"It's a full spectrum of career challenge – fram the earliest detection of threats and attacks to infrastructure protection to infarmatian assurance," says Patrick. "Privacy is becoming a more difficult situation to deal with in the IT world, but it is becaming more and more important. A lot af e-business initiatives are challenged by this."

Patrick, wha says Northrop Grumman IT receives more than 40,000 resumes per month, says the challenge is in finding people who fit the IT security mold. This view resanates with that of the Informatian Technology Association of America. ITAA's most recent repart indicates that the pool of talent for IT security is alarmingly shallaw.

Northrop Grumman IT, based in Herndan, VA and with aperations throughout the U.S. and internationally, identifies people with strang IT and analytical skills - to anticipate how an enemy ta an IT system would attack it, whether in the instance af a state or local agency, a business or the military. Patrick looks for Certified Information System Security on resumes. Because af the number af resumes received for Northrop Grumman IT's 800 some-odd job postings, he advises submitting resumes that include key wards listed in job descriptions, which helps when sifting through the resume data ta identify matches. Hawever, Patrick says, the best way to get an interview is through a referral by one of Northrop Grumman's 23,000 IT employees.

Among the current requirements for the company is a large cantract awarded ta suppart the U.S. Army. "Our job includes protecting and managing

information for U.S. Army units deplayed worldwide," Patrick explains. "It's work that involves network operations, regianal intel analysis, human intelligence, operational security, electronic warfare and Oracle database analysis. Never mind the challenge of creating and integrating these large-scale systems -you'll be contributing your expertise to keep America strong and do wark that really matters."

There are other benefits to joining Northrop Grumman IT. "Because this technology is emerging, yau'll have the chance to develop your skills and career alongside the experts. This is where the learning is," Patrick says. "We're working with universities to develop programs that support IT security, and Northrop Grumman IT is committed to people and career development."

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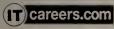
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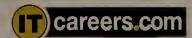
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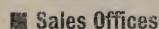
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#### **Broadband**

continued from page 1

Barrett disagrees. "Three hundred or 400 kilobits is not real broadband," he said in a speech earlier this year. "When you get to five or 10 meg, that's real broadband, going to 100. The capabilities you can provide the user ... [get] to be phenomenal."

Barrett is one of 300 high-tech executive members of the Technology Network, a group that lobbies the federal government on a variety of technology issues, including broadband. In January, the group called on the federal government to create a national policy that would bring 100M bit/sec to 100 million homes by 2010 (www.nwfu sion.com, DocFinder: 3152).

TechNet member Rick Roscitt, CEO of ADC Telecommunications, says a nationwide broadband network that's available to all users would accelerate delivery and acceptance of everything from real-time distance learning to medical imaging among doctors and hospitals, downloadable movies and online gaming.

"Broadband should be a national imperative for this country in the 21st century, just like putting a man on the moon was imperative in the last century," said TechNet member John Chambers, president and CEO of Cisco, in a statement earlier this year."To stay competitive, educate the workforce and increase productivity, the United States must have ubiquitous broadband."

The group says it firmly believes that existing DSL and cable modem services are not "real broadband."

Delivering 100M bit/sec to every home is "a nice goal," says Pat Hurley, an analyst at TeleChoice. But the DSL and cable modem service providers can't even sell what they have today. Only 10% to 15% of the households that have access to high-speed Internet services have signed up for them, Hurley says. "There's a long way to go to convince people that existing services are what they need."

That will change as households buy additional computers and start to network them, Hurley says. "If you have a wireless access point ... and the kids are surfing the Web and you need to go on the corporate VPN, you can't be sharing a dial-up connection."

But you don't need 100M bit/sec to satisfy those demands. "The FCC's definition of broadband, anything over 200K bit/sec, is very realistic," says Charles Hoffman, CEO of Covad Communications. "100M bit/sec to the home will never happen."

Other network executives agree. "The vast majority of people would have no idea what to do with [100M bit/sec]," says William Esrey, chairman and CEO at Sprint. "Maybe some day with full video, HDTV and all family members on at the same time, then maybe."

#### Chicken and egg

But will demanding applications emerge if the infrastructure isn't there to support them? It's a classic chicken-and-egg problem, and it's why TechNet is calling for a national broadband policy. Ubiquitous, true broadband access will give rise to applications that can't even be envisioned yet.

And on a more practical front: If users aren't adopting current broadband services today, how could debt-ridden telecom companies muster the investment necessary to push out fatter pipes to consumers without some governmental help?

Experience in Korea has shown that the government can help drive acceptance of broadband, if only at DSL speeds. "Part of the success of broadband in Korea is based on the fact that KT and Hanaro [Telecom] and other companies have gotten subsidies and encouragement from the government," Hurley says.

About half of Korea's phone lines have DSL, he says."That's many times higher than the percentage in the U.S. One of the big reasons is because of subsidies — they can charge \$25 or less for DSL services, whereas the average person in the U.S. pays \$50 a

While lower prices certainly have helped the adoption of DSL in Korea, online gaming, e-commerce, stock trading and streaming entertainment also are key application drivers, he says.

In the U.S., incumbent local exchange carriers say they don't make enough money on broadband as it is, so lowering rates seems to be out of the question in the near term. And there is no indication that

10.2

**■ Broadband should be a national imperative** for this country in the 21st century, just like putting a man on the moon was an imperative in the last century. 77

**John Chambers** President and CEO, Cisco

**6** The FCC's definition of broadband, anything over 200K bit/sec, is very realistic. 100M bit/sec to the home will never happen. 95

**Charles Hoffman** CEO, Covad





**≦** The vast majority of people would have no idea what to do with [100M bit/sec]. 77

William Esrey Chairman and CEO, Sprint

the government will subsidize even DSLspeed broadband.

Some service providers, such as Covad, are dropping prices on their own. Since emerging from bankruptcy, Covad has dropped its monthly DSL service rates by \$10 per month. Covad's Hoffman says he is a firm believer that lower prices will drive broadband demand. "Once dial-up users experience broadband, they'll never go back," he says.

#### A new world

But at its best, dropping prices simply will inch up DSL/cable TV broadband demand, not change the world as envisioned by Barrett, Chambers and other TechNet

Which brings us back to the main point: The need for a national broadband policy can't be argued sensibly unless it is agreed on what constitutes broadband.

So what is broadband? "It's a moving definition," Roscitt says. "The FCC's definition is behind and TechNet is overexaggerating."

"TechNet was trying to make a point," he says. "They were taking a forward-looking view of broadband. 100M bit/sec is really true broadband and maybe in 20 years that will seem slow. But the real issue is we have only scratched the surface of what broadband really is."

TeleChoice's Hurley defines broadband as an always-on connection reaching 1.544M bit/sec. Gartner recently released a study called "Real Broadband" that defines broadband as at least 10M bit/sec.

"We need to have some agreement around a minimum," says Kathie Hackler, vice president and chief telecom analyst at Gartner. "And we should set the bar high enough that some interesting applications evolve around that amount of bandwidth.

That's why we picked 10."

And she says she doesn't see us getting there without some help from the government. It will require the telephone and cable companies to make some significant infrastructure changes, she says. "It has to be the industry and government working together," she says.

While it is unclear how and when the government will come back to the broadband debate and how high it will set the broadband bar, TechNet points to President Bush's broadband remarks this summer as a step forward.

"We must bring the promise of broadband technology to millions of Americans ...to make sure the economy grows," Bush said in August at the Waco Economic Forum. He also said, "We must be aggressive about our deployment of broadband" in another speech in June.

"I'm disappointed we don't have a national broadband policy," ADC's Roscitt says. "But realistically, we're in the middle of a war on terrorism, the economy is in bad shape, and it's an election year."

The broadband debate will heat up again when the political scene cools down.

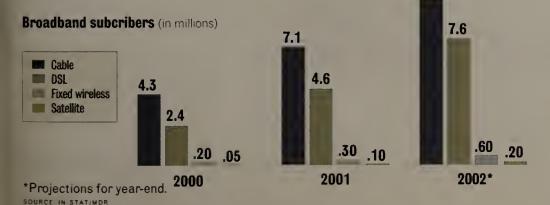


Two technology gurus argue the ment of having a national broadband policy. Add your thoughts in our forum

DocFinder: 3147

# **Broadband realities and aspirations**

While broadband services have grown by 63% in the past three years, broadband is only expected to be used by 18.6 million homes by yearend, 17% of all homes.



# Chambers: Service provider market still a challenge

BY JIM DUFFY

NEW YORK — Cisco "has a long way to go" in providing the breadth of products service providers need for offering new services and generating revenue, CEO John Chambers told investors last week.

At the UBS Warburg Global Telecom con-

ference in New York, Chambers gave attendees a candid assessment of Cisco's progress in its key markets, including storage, voice, security and wireless. While awarding Cisco "high marks" in enterprise voice, Chambers admitted room for improvement in service provider voice offerings.

"Service providers are starting to take hold but we need more of a systems end-toend architecture," he said.

Cisco has such an architecture — its

tems architecture for service providers is needed to help Cisco increase its service provider business from its current 20% of revenue to 40% to 50% in five years. Cisco derived about 40% of its business from service providers as recently as three years ago before the telecom industry went into its economic slump underscored by sharply reduced capital spending.

to make optical a higher-margin offering.

AVVID (Architecture for Voice, Video and Integrated Data) blueprint — for companies. Chambers also said the end-to-end sys-

Chambers reiterated Cisco's commitment to the service provider market and its intention to play in a large number of product and market segments, both high and low margin. One particular challenge is to add high-margin routing and switching intelligence to low-margin optical transport gear

Cisco also is looking to transition service providers from a commodity transport business model to a more lucrative valueadded application and integration business to create more demand for Cisco products in that market, Chambers said.

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- Jonathan Davidson, senior manager, Technical Marketing at Cisco Systems, Inc.

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[the future begins less,

# BackSpin Mark Gibbs



# National concerns and theoretical accounting

"Only 54 U.S. government online systems were successfully attacked in the first half of this year compared with the 204 overt attacks that took place in the first half of 2001....The overall trend for overt digital attacks

on military and government online computers is declining since April and May 2001 .... [There] were 2,031 overt attacks on government and military targets recorded worldwide in 2001 by the mi2g SIPS database. For 2002, the mi2g Intelligence Unit is projecting a total of 1,400 such attacks, a decline of a third, year on year."

- News releases from U.K. consultancy mi2g

Let's assume mi2g is not getting accurate reporting from the various government agencies. If that is true, let's assume it has always been receiving lower figures than is actually the case. Therefore the downward trend really is a downward trend.

This calls into question the real cost and relevance of what are often called cyber incidents, which makes you wonder about how relevant the U.S.'s Critical Infrastructure Protection Board's (CIPB) draft report, "The National Strategy to Secure Cyberspace" issued in September, really is (see www.nwfusion.com, DocFinder: 3153).

The report was built on a handful of assumptions.

The first was: "Cyber incidents are increasing in number, sophistication, severity and cost." If you believe mi2g's analysis, then the CIPB's report is overblown and the board's very existence questionable.

I wonder if the hyped cost of cyber incidents is like the equally hyped cost of employee misuse of Internet connections or the cost of any other problem that is measured in tiny increments — largely an exercise in theoretical accounting.

Theoretical accounting is my term for financial analyses that show gains or losses based upon the movements of very small amounts of money or money that is gained or lost by inference.

If 1,000 employees, who cost an average of \$70,000 fully burdened, each spend 15 minutes every day walking to and from the coffee machine, the cost to the company is \$2,186,000 per year. In many circles people will say, "We must do something about this," and consequently fire the company that provides the coffee service.

It is always easy to elevate theoretical accounting into a serious, corporate issue because it has the smell of logic. In general, this logic can be expressed as tiny-amounts-of-money multipled by some-number-of-people equals \$X.And if \$X is a number that is big enough to care about, then \$X matters and SOMETHING MUST BE DONE ABOUT IT!

And anywhere computers are involved, theoretical

accounting is easy because microcosts (that is, fractional costs that can only be measured because of computers) can be tracked.

www.nwfusion.com

The trick for IT folks is to not let theoretical accounting using microcosts become a measure of performance. Once the bean counters get hold of this kind of data, no one is safe because it appears to make sense. And the people who become the police of theoretical accounting are those who can measure it: the IT group.

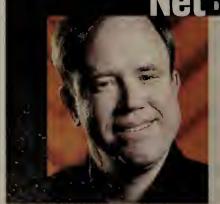
But back to the cost of cyber incidents: At the lowest level, if your home PC is trashed by a virus I might feel sorry for you (don't count on it), but in the grand scheme of things the burden is on you.

It is just like when you forget to change the oil in your car and your engine seizes — sure, in the big picture it costs the nation but making a case for legislation to make people change their oil would be ridiculous. And the same applies up the Internet food chain. If a major online vendor gets hacked, tough, that's life. Or a virtual version thereof.

Like the cost to the nation of not changing your oil, the cost of cyber incidents is another example of theoretical accounting: Something interesting, apparently logical but useless in strategic thinking.

Send your accounting, theoretical or otherwise, to backspin@gibbs.com.

# 'NetBuzz News, insights, opinions and oddities



# A little company that could

Roger Greene is anything but your typical high-tech CEO, so it's no coincidence that his company, Ipswitch, is anything but your typical software maker. First of all, Ipswitch has been around for awhile: 11 years, which is about a century in Internet time.

Even more remarkable, the company earns honest-to-goodness profits, albeit not as much it did during the boom or as much as Greene would like today.

And not only is Ipswitch privately held, it is unlikely to ever go public, even pretuming an upturn in the economy and a renewed appetite for IPOs on Wall Street. Greene's not interested, thank you very much.

Ipswitch is located in Lexington, Mass., employs 140 and has never "right-sized" a single one.

The company is best known for its file-transfer software called WS-FTP. In other words, Ipswitch is not flashy or a household name. Its other products — an iteract messaging platform called IMail Server and WhatsUp Gold, a network in imment tool — are bread-and-butter offerings designed to meet the needs and jets of smaller businesses.

Stille here to quicken the pulse, yet you've got to root for these guys.

Greene read Tracy Kidder's book"The Soul of a New Machine" upon its

1982, he was "horrified" by the glorification of the 24-7 work demands

stant legends of that band of Data General engineers.

to med not to [work] with a company like that, or, when I got to the tarting one, to create one like that," Greene, 44, told me recently.

goal was to create a company that I would enjoy managers and the state of the same says. "That meant putting a

whole lot of emphasis on building up the structure of the organization and the management of the organization so that it would be stable and able to endure the inevitable up and down cycles of the economy."

It also meant fostering a work environment that would make the stereotypical slave-driving boss blanch.

"People having enough time to spend with family and friends is really important to [building] a long-term commitment on their part to the company," he says. "If you give people a little more time off you're going to more than make that up in loyalty and improved productivity."

Minimum vacation at Ipswitch is four weeks; you get six after five years. No one gets points for burning the midnight oil. . . . But does Greene walk the walk?

"My hours are a little bit hard to quantify because I spend a lot of time thinking about business when I'm not at work, but I probably work about 50 hours a week," he says, leaving the "only" unspoken. "I exercise every day. I took up the piano this year and I've been practicing for at least a half-hour every day."

Sounds perfectly sane, if not exactly in line with what we've come to expect from the men and women who occupy corner offices.

Greene has another habit that would unnerve many of his CEO brethren: He's candid . . . even with the press.

For example, he doesn't try to fudge the fact that the market for FTP products has gone flat or that Ipswitch needs to "become a lot more disciplined and structured in the way we manage the company."

"The reality is that if your competitors knew everything about what you were doing, it still wouldn't help them that much," he says. "Your customers it helps quite a bit, and your employees it helps quite a bit, so why not be more on the open side?"

Don't try telling him it's just not done.

Candor is always welcome here. The address is buzz@nww.com

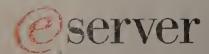
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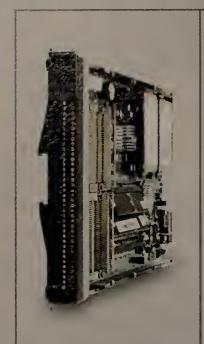
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